The Builder.

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ILLUSTRATION.

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The Paris Exhibition.

FORMALLY opened on the 10th of the month, the Exhibition was then in so skeleton a state that no ceremony was attempted, and no attraction created for the public. It appears the invariable fate of all such displays that they shall offer to the sight, at first, little else than bare walls and floors, and, though the policy may be a good one of adhering to the date originally fixed, the credit of an Exhibition is seriously hurt when it is found to be, comparatively, a blank. This, as is well known, was designed to set forth, in systematic order, illustrations, specimens, or models of every description of machinery, apparatus, and implements employed in ships or boats, on seas or rivers, whether for commerce, fisheries, pleasure, or the saving of life; together with all varieties of provisions for the health and comfort of the mariner class. But other objects were included: a department of fine arts, embracing painting, sculpture, drawing, and photography; one of furniture, carpets, floor-cloths, felting, Japanese hangings, metal-work, earthenware, and glass, with other miscellanies, utterly unmaritime and unfluvial. To render the collection still more comprehensive, it was arranged to contain plans and models of ports of refuge, basins, moles, jetties, floating-docks, and dams, with examples of bricks, stone, timber, and cement used in their construction, and explanations of the various processes used in their fabrication by different countries. Finally, there were cabinets of aquatic productions in all their endless richness. A visit paid at the close of last week to the familiar building known as the Palace of Industry, on the banks of the Seine, brought to view a great amount of progress, and made the whole scheme of the Exhibition at least intelligible, besides which a vast number of interesting matters have already been brought together, while thousands of other treasures or trifles, as the case may be, are, every hour of the day and night, being unpacked. Some attempt has been made to institute a comparison between the wonderful competition at Havre, held some years ago, and this; but though there are many points of resemblance, the conditions are essentially different. That took place in the second maritime city of France, amid a population of traders and sailors; this is in a capital, lying far inland, on the shores of a very inferior stream: that had every requisite near at hand; this had to assort them from far and wide. Yet in both the same purpose is apparent, and, although the general subject may not possess so much importance for France as for England—for a riverain metropolis as for a seaport town—it must be borne in mind that the Exhibition is International, not local, or even purely national. It represents Great Britain and the United States, the Northern kingdoms and Germany, Russia and Italy, as well as France; and the emulation concerns them all, if not equally. Where so much is still in a state of chaos, and where the indications of a catalogue, as yet necessarily imperfect, serve but as a broken clue through an elaborate labyrinth, it is not easy to obtain an idea of the whole as it will be when panoramically disposed; but it has assumed sufficient form by this time to be generally understood. Of course, among the eight groups and forty-two classes, those dedicated to the business of the waters of the world, salt and fresh, are the most conspicuous, occupy the largest space, and set forth the intentions of the projectors. It is difficult, perhaps, for landsmen, without seeing them, to imagine how powerfully interesting these everyday affairs of a sphere so foreign to his life can be made, even to him. There is a real fascination, however, in all this inventive ingenuity, and, in our days of *Castalias* and *Bessemers*,—in those suggestions of hulls in new forms, curiously-contrived decks, cabins warranted to be steady as civic drawing-rooms, rafts to take off entire crews from wrecks, safety-boats, fishing-craft with wells for deep-sea adventures, and especially lifeboats, the science of whose construction has been marvellously advanced within the last seven years. It must be remembered that we live in an age, not merely of extraordinary ocean enterprise, but also in an age of extraordinary ocean disaster, and that the people who go down into the deep represent another and far larger population dependent on them, and attached to them, who remain at home. Hence a common sympathy, quite apart from any professional instincts, with these ingenious proposals for the better stepping and steadying of masts, the superseding of heavy by light chain-cables without increase of danger, the taking of soundings in perilous seas, the regulations for entering or leaving harbours; and, above all, perhaps, the raising and lowering of boats, to defects in which so much of calamity is due. It would carry us beyond all practicable limit, to specify the many ideas of this kind that are presented, and to select a few might be unfair; besides which, at present, only a general survey of the Maritime and Fluvial Exhibition at Paris is contemplated. There are, as would be expected, numerous displays of canvas and rigging, of anchors and rudders, of grappling-irons and oars, of compasses, telescopes, quadrants, and chronometers; and an irresistible impression is produced of the infinite necessities to be considered in the construction and equipment of a ship. In the display of wood, a wide choice lies open between the British oak and the northern teak, and it is evident that year by year experiments will continue to be made on fresh materials. For the building of light river-craft, and the lining, so to term it, of luxurious yachts, the riches of the forest, in every part of the globe, have been put under requisition; the brilliant rosewood of Brazil; the infinitely delicate pomegranate of Havannah, the red-hearted cornel tree of Cuba, the Madagascar ebony, which takes a polish like that of steel, the St. Lucia satin, the ordinary sandal and maple of trade, and the rare amaranthe of Cayenne. These are in distinct and striking contrast with the qualities applied to the manufacture of blocks, capstan-bars, belaying-pins, masts, spars, and helms, which, nevertheless, are quite as interesting, if not so attractive. In canvas, we have the white, or royal; the dirty brown, or merchant; and the red, or fisherman; in rigging, an immense proportion of iron and steel as vieing with the old-fashioned cordage; and, for holding a vessel to her ground, Cyclopean cables of iron, which, it would seem, no tempest could tear away, side by side with a wire cord scarcely 1 in. thick, to which, it is asserted, a 300-ton three-master might trust herself in the severest storm. To another class belong sets of articles, characteristically marine, paint, pitch, and coppering, materials for caulking, anti-galvanic compositions, gums for preserving sheathing from the adhesion of weeds and crustacea, preparations of copal and gutta-percha, to resist alkalies and acids, patents to prevent timber from rotting, and so forth; while near them, will be seen surgeons' chests, ships' ventilators, deck and cabin telegraphs, white slippers, traditionally assigned to the exclusive wearing of stewards, cabin book-shelves, swinging lamps, passengers' chess-boards, tooth-paste for special use afloat, perfumes and bitters similarly special, and a hundred other varieties, many of which, no doubt, are mere clap-traps, though in general good authorities affirm them to be much in vogue. There always will be, indeed, a certain amount of quackery in collections so large and miscellaneous. But the Paris Exhibition is infinitely more free from trivialities than such Exhibitions, as a rule, are in England,—a fact to be accounted for, partly by the serious and practical tone of the programme, and partly by the prizes offered. Among trivialities, however, it is not intended to include a considerable class of illustrations, extraneous though they certainly are to the idea of a maritime and fluvial emulation, but admitted, probably, in order still further to popularise it. French and Italian silks, jewelry from Rome, London, Paris, and Vienna; bronze work, in which the French are no longer our superiors; pianos that must be superb if their tones are only on a par with their decorations; perfumes, trinkets, toys, clocks, watches, and bicycles. More legitimate, if not so picturesque, are groups of hats, coats, leggings, and boots for seamen; but, even more valuable than these is that which has been termed the Commissariat of the Seas. In no respect has nautical life undergone so complete a revolution. The picture of a mariner's existence in the olden time was one of utter monotony and hardship, so far as his food and drink were concerned; but the maritime exhibitions of our day exhibit a very different state of things. It is true that the bulk of provisions shipped must be akin to the traditional type; but there is something better now than the invariable hard junk, barrelled pork, excruciatingly salt, biscuits often mouldy or weedily, coarse rum sparingly qualified, when necessary, with lime-

juice, with only the chance of a fresh meal, at distant intervals, when a haul of fish could be obtained, or when a boatload of mutton, fowls vegetables, and fruit, was procurable in some harbour, or from the coast of some Friendly Island. Other stores are put on board than briny blocks of meat, puncheons of fiery Jamaica, and biscuits which, perhaps, have made many voyages, or decayed in the East End ship-chandlers' stores. There are ovens for a daily, or less frequent, baking of bread, with apparatus for converting salt water into fresh every twenty-four hours, thus ridding a water-logged or becalmed ship of its worst danger. The sailor's table may be spread with a constant change of dried lentils and beans, Italian, African or Chinese rice, burnt onions, corn flour, and barley, milk in a concentrated or medicated form, cheap cheeses, fit to keep for a long time in almost any climate, and tinned beef and mutton, which the new supplies from South America and the Colonies have rendered far less costly than heretofore, and many a savoury and wholesome mess is possible now, of which, in former days, the seaman would not have dreamed; and the innovation has got rid of the eternal *régime* of saltness, dryness, and spirituous liquors, although, of course, a considerable amount of the mariner's fare must always be kept in a smoked, dried, or pickled state, and although it is somewhat irony to tell us, in connexion with him, of Norman butter, cheese, flour from Holland, spice-cheese, extract of potatoes, or Taragon vinegar. Rum, too, is necessarily the staple drink at sea; for while an inventor has patented an anti-scorbutic beer for the Exhibition, ship-charterers object that it would take up too much room. Leaving this topic for the remaining mechanical departments, they comprise models of improved carpenters' chests and tools, ship-smithies, steam-engines, and the several uses to which they may be put on board, besides that of propulsion, naval architecture in all its stages, from keel to truck, patent methods of steering from different parts of the vessel, and for manipulating its sails, and for the greater safety of fishing craft, in all its varieties, from that pursued by the villagers of the Norman coast, to that of the remotest Northern seas; and these are supplemented by models of foreign craft from the Mediterranean, the Southern, the Indian, and the China seas, suggesting how vast, various, and strange a world it is that lives, and moves, and has its being on the waters. A very creditable effort is visible, moreover, to ameliorate the condition of those who dwell incessantly on rivers or canals, for everywhere, except, perhaps, in Holland, this is a most ill-lodged, miserable, uncomfortable population, whose abodes admit of no ease or decency, and whose means of locomotion, probably, have not witnessed any improvement for half a century. Some designs of iron barges appear excellent. Again, the life-boats and life-saving apparatus are, in most instances, admirable; but it may be objected that many of the plans appear excessively elaborate, because, for such purposes, simplicity is above all else essential. Classed near, though not with them, are sundry novelties of idea for whaling and ferry boats,—compounds of weight and strength, quite consonant with the terrible array of weapons that constitute the professional cutlery of a whaler, and particularly to be noted in one respect, in that they provide for the stowage of stores in larger quantities than usual for boats that may part company for any length of time with their ship. All this is proof of an intelligent and humane design on the part of those by whom the entire scheme of the Exhibition was originated; but credit is due, also, to the several Governments which have given the aid of their authority and experience to a work so praiseworthy. That of England never fails to share the knowledge it acquires with those of foreign nations. For example, three times have the Board of Trade allowed the French ample opportunities for studying their matchless Rocket Apparatus, which, on each occasion, has manifested an appreciable improvement, and, if it may not be regarded as perfect at last, it is simply because further progress in the future is sure to follow. It would be tedious to enumerate the various details of a "station," but the principal are,—carts of special construction for carrying the apparatus to a wreck; machines from which to fire the rocket; the rockets themselves; the lines and boxes for holding them,—upon these everything depends; the cases for the ammunition; the "travellers" for easing a passage along the cable; the sling life-buoys; the anchors for burying in the soil and securing the land end; the light-stands, resembling those of telescopes; life-belts; mortars; ladders; heaving-canes, loaded at one end with lead; there are many others, such as axes, wheel-barrows, lamps, and tents for reception of the saved; but they fill a long list, and the general scope of the official display will be apparent without referring to more than its leading features. The last class is that, perhaps, in which the failure of any too ambitious plan was inevitable. The Aquarium, it was true, might have been made at once instructive and attractive, and may yet become so; but, like other projects of the kind elsewhere, it is at present only a sketch, and can never be expected to rival its prototype at Havre, built in imitation of Fingal's cave, which had the advantage of an unbounded sea-water supply, and has never been equalled as an illustration of sea and river life. Apart from this, however, the term "aquatic products" was a large one, suggesting a promise impossible of fulfilment. There was no difficulty in gathering together collections of sponges, sea-weeds, and the several forms to which they are reduced by science; shells,—with the cameos cut from them,—corals, whalebone, pearls, tortoiseshell, oil, mother-of-pearl, sea-ivory, edible birds' nests, meerschaum, and sealskin; yet these constitute only a trifling proportion of the wonders and riches that lurk in the ocean; and even if to them be added a range of natural history illustrations, such as was possible in an inland city, the programme is still, as it could not help being, exceedingly restricted. Taken altogether, nevertheless, the latest enterprise of Paris, in the shape of an International Exhibition, while imperfect in many respects, and backward in more, has produced results of remarkable interest; an increase which will be considerably enhanced when its outlines have been fully filled up. Those of the Fine Arts Department are, even now, so void and formless that they must be left for judgment at a future day.

LONDON ROADS AND THE COST OF THEM.

AFTER giving some notion of the uses of the streets within the Metropolitan Police District, we proposed, in our last, to inquire what it had cost to lay down and did cost to maintain these roadways.* Let us see. But, first, it will be as well to impress upon the reader that since the latter part of the last century the highways of this country have been the admiration of all Europe. Our roads, our horses, our coaches, and our coachmen, were all so thoroughly English that they were well calculated to astonish the foreigner who had been accustomed in his own country to travel along highways which were as loose in the soil, and as furrowed with ruts, as newly-ploughed fields; and accustomed, too, to be conveyed from town to town in diligences, which were a kind of cross between a fly-wagon and an omnibus, and not nearly so rapid as hearses returning from a funeral; and had the great hulking horses harnessed to the lumbering vehicle with traces of rope, and a huge jack-booted driver, moreover (half-postboy half-coachman), to "tool" the animals along, and who kept continually shouting, screaming, and swearing at the straggling team.

In this country, on the contrary, the roadway was generally as level as water and as hard as steel, and upon it the patter of the horses' hoofs sounded as they galloped along almost as crisply as the rattle of castanets. Then, the coachman was often a gentleman, and, in many instances, even a person of rank; whilst the vehicle itself was a perfect model of lightness and elegance, and the "cattle" such thoroughbred animals as England alone could produce,—with coats as sleek as satin, and their entire leathern trappings as brightly polished as a dandy's boots.

What a sight it was only a few years ago to see the mails and the fast coaches leaving the metropolis by night! What a crowd there used to be every evening at eight congregated on the "off side" at the Angel at Islington, the White Horse Cellar, Piccadilly, and the Elephant and Castle over the water. Who that once saw it can forget the scene at such places on the king's birthday? for then the front of the taverns was studded over with lights of many colours, arranged in glittering starry lines. The graceful horses were all newly harnessed; the bright brass ornaments on their trappings shone like burnished gold in the glare of the illuminations, and at each of their tossing heads there were gay rosettes of ribbon and bunches of flowers which were as brilliant as the pattern out of a kaleidoscope with the cluster of their many bright tints. Then the mail-coaches themselves were all newly painted; and the coachmen and guards gay, as poppies in a corn-field, in their unsullied scarlet coats (worn for the first time that day); while the air kept on resounding with the twang of the tantara! from the post-horns of the newly-arriving or departing vehicles.

When the present roads of the metropolis itself were first formed it is difficult to state with any precision. As we have said, the first Act for paving and improving the City was passed as far back as the second year of the reign of Henry VIII. (A.D. 1532); and though, towards the end of the seventeenth and the beginning of the eighteenth centuries, there were sundry Bills brought before Parliament and confirmed, for giving the Corporation of London power to improve the lighting and paving of the City, nothing effectual seems to have been done till the middle of the reign of George III. Then the present system of paving and lighting is known to have been introduced—but still in a very imperfect form; for at that time gas was hardly invented (indeed, it was not till 1803 that Mr. Winsor first lighted the old Lyceum Theatre with carburetted hydrogen,—and that merely as an experiment); whilst macadamisation was a system of road-making which was not known at the beginning of the present "year-hundred" (as the Germans call it), or at least it was not put in practice till 1818; and then only "tentatively."

However, let us dismiss the historical and come down to the practical part of the subject: the one is merely curious, whilst the other is useful, information.

Well, then, there are now four different kinds of pavement employed in the streets of the metropolis.

1. *Stone pavement*, which is composed of solid blocks of Aberdeen granite.

2. *Macadamised pavement*, or rather "road" which is, or should be, composed of granite, broken into moderately small pieces, and compacted or indurated together by means of continued pressure.

3. *Wood pavement*, composed of blocks of pine or other wood treated, either laterally or superficially, with some bituminous coating.

4. *Asphalte pavement* composed of a layer of hard bitumen spread upon a bed of concrete.

Of the relative efficacy or advantages of these several kinds of hard and smooth transit-surfaces we have just now nothing to do. The cost alone concerns us; and to that, and that only, we shall confine the present article.

Of the relative *quantities* of such pavements, on the other hand, there exist no definite returns. The comparative extent of the stone, the macadamised, the wood, and the asphalte surfaces has not as yet been ascertained; for no general account has been published condensing into one comprehensive total the reports and returns, as well as the receipts and expenditure, of the several vestries and parochial authorities intrusted with the paving and lighting of the metropolitan thoroughfares. It is, however, still possible to arrive at an approximation as to the comparative extent of such pavements by consulting those of long experience in connexion with the subject.

Granite or *Stone Pavement*, we are informed, prevails principally in the great centre of London; for the old saying of "getting off the stones," as one proceeds towards the suburbs, still holds good to a great extent. Hence, "granite," as the granite blocks are usually called, forms the main material of the highways running through, so to speak, the *heart* of London. For if, on the northern side of the Thames, a boundary-line be drawn along the Euston-road, and so down the City-road, and then *viâ* Brick-lane to High-street, Whitechapel, in the East; and if afterwards the other end of this northern limit be carried down by the side of Hyde and Green Parks, to the foot of Westminster Bridge, on the west; it will be found that nearly all the thoroughfares on the north bank of the Thames which are enclosed within such a line, are paved with granite. Then, if on the south side of the river a similar boundary-line be made to stretch from the New-cut to Long-lane, Bermondsey, and to include very nearly the whole of Lambeth and Southwark, it will be found that mostly all the streets bearing down to the Thames, and falling inside of this line, may likewise be taken as paved with the same material.

* See p. 656, *ante*.

"*Macadam*," on the other hand, generally prevails in all the thoroughfares outside of such a circle; and though it is doubtlessly a fact that, in both the districts thus indicated as constituting granite-paved London and macadamised London, exceptions to the general rule may exist,—viz., that in the so-called granite-paved portion some miles of macadamised way may be found, and *vice versâ*,—nevertheless, we are assured by persons of authority, such exceptional cases are the best proofs of the rule, and that the few miles of *this* kind of pavement existing where *that* is said to prevail may be fairly dismissed as just about balancing each other.

Wood and *asphalte*, we are informed by the same authority, cannot be said respectively to constitute the paving of more than five miles of the London thoroughfares; so that as such kinds of pavement are as yet only tentative processes, and undergoing merely a probationary course of traffic, little notice need be taken of them here.

In the City proper, stone pavement alone (excepting, of course, a few experimental "runs" of the before-mentioned wood and asphalte surfaces) affords the medium of street locomotion. Now, according to a return made by the London police as to the extent, population, as well as the length and the number of streets in the metropolitan police district, and also in the City of London, in 1850, the total extent of the City streets was just fifty miles. The area of the City proper however, is but a fraction more than one square mile (668 acres); whereas that of the stone pavement district included within the above-mentioned boundary is about seven times as large: so that, as this portion of the metropolis constitutes, together with the City itself, the great bricken heart of London, the relative extent of the streets inclosed within the respective areas may be safely said to be in the same proportion. Hence the gross length of the thoroughfares included within the granite-paved boundary may be taken, in round numbers, at 400 miles, *i.e.*, $50 + (50 \times 7)$.

But, as we have said, the entire extent of the roadways included within the metropolis proper (which is not quite one-third larger than the inner police district, and that is just 90 square miles superficies) may be set down at 2,500 lineal miles; so that if there are about 400 miles of pavement in the granite portion of London, there must be 2,100 miles of roadway altogether in the suburban *macadamised* part of it. Consequently, the sum to be worked out stands thus:—Given 400 miles of granite pavement in the heart of London, and 2,100 miles of macadamised roads forming the several suburban arteries and veins in connexion with this same "heart," what would be the cost of each, as well as the gross expense of instituting and maintaining such an extent of thoroughfare?

Now the charge for Aberdeen granite, ready prepared for paving (or, as it is called "pitching"), and delivered on the spot, is about 1*l.* 10*s.* per ton. A ton of 7-in. blocks,—that is to say, of blocks which are to be sunk to that depth below the level of the roadway,—will cover from 2¼ to 3 square yards. The cost, therefore, of "pitching" the blocks, labour included, will amount to somewhere about 11*s.* 6*d.* per square yard.

Further, the average breadth of the metropolitan streets may be taken at about 10 yards from foot-pavement to foot-pavement. Each yard "run," therefore, of such a granite-paved street would come to 5*l.* 15*s.*; or as $1{,}760 \times 5{\cdot}75 = 10{,}120$, we may say roughly that the cost of every mile of granite pavement would be about 10,000*l.*; and hence the original gross cost of the 400 miles of pavement in the central portion of the metropolis would average about four millions sterling.

For macadamised streets, where the traffic is considerable, such as that of Regent-street and the Edgware-road, three layers of broken granite a year are necessary; and the expense of this is not less than 2*s.* 6*d.* a square yard; but the concrete used as a foundation in this kind of road-construction averages 4*s.* 6*d.* to 6*s.* the *cube* yard, by which admeasurement it is always calculated; and a cubic yard of Thames ballast weighs just upon 1¼ ton. So that the cost of a macadamised roadway may be set down at 7*s.* 6*d.* per square yard, or at 10 yards breadth to each roadway, 3*l.* 15*s.* per yard run. This is at the rate of 6,600*l.* per mile; and as there are 2,100 miles of these roads in the outer portion of the metropolis, according to Act of Parliament, it follows that the gross cost of constructing such highways must have amounted to $6{,}600 \times 2{,}100$, or very nearly 14,000,000*l.* altogether.

Hence, adding this sum to the previous 4,000,000*l.* (the cost of the whole of the 400 miles of granite-paved streets), we have a total of 18,000,000*l.* sterling for the gross expense of constructing 2,500 miles, which make up the aggregate length of paved surface throughout the capital.

And now for the annual expense of keeping such a length of highway in a state of repair, and then our task is ended

In some of the more quiet streets, such as those in the immediate neighbourhood of Golden and Fitzroy Squares, a good granite pavement will last for twenty years, with but little repair; and even in streets of inordinate traffic, such as Fleet-street, Cheapside, &c., it will last for three or four years, provided the best form of construction is originally adopted. On Macadamised roads of regular traffic, however, the repairs and relayings range from 4*s.* to 6*s.* yearly the square yard. But the expense of such repairs can be ascertained with considerable accuracy from the paving rate, and this for one of the largest metropolitan parishes shows an average annual cost of 1,000*l.* per mile for the repairs of granite-paved streets (ten years being the average duration of the original pavement), and about 4,400*l.* per mile for those of the Macadamised roads (5*s.* per square yard, or 50*s.* per yard run, for the whole width of the street, being the average expense of the relaying. It follows, therefore, that the aggregate expense for the repairs of the entire London streets may be broadly stated as follows:—400 miles of granite at 1,000*l.* = 400,000*l.*, and 2,100 miles of Macadamised streets at 4,400*l.* per mile = 9,240,000*l.*, or just upon ten millions sterling per annum!

Hence the conclusion is that the streets of this very "great metropolis" cost just upon twenty millions to lay down, and about ten millions annually to maintain in a state of continual repair.

Well, therefore, may country-folk say "the streets of London are paved with gold!"

Still, this is the cost of the roadways alone; consequently, to make "the little bill" complete, there must even yet be added to the above amount the expense of the foot-pavements, or "*trottoirs*," as the French style them. Let us, therefore, endeavour to find out what is the sum required for the formation and renewal of these same sideways, rather than highways; and then the statement as to the total amount of money expended upon the construction and repair of the London thoroughfares is finished.

Now, the foot-pavement is to the roadway what the gravel walk is to the garden: the trim and comely edging which enables those who desire a stroll to enjoy conveniently the charm of the well-laid-out and well-tended "plot" in the centre,—the broad flat frame which is at once an ornament and a use to the enclosed picture. The roadways, indeed, are the big veins, carrying the commercial life-stream to the great heart of London; whilst the footways are the tiny capillaries, charged with an endless stream of "*corpuscles*," which serve to give energy and spirits, as well as the fresh hue of health, to the whole system. And if the carriages, cabs, and 'buses, carts and vans, are the heavily-freighted ships ploughing the broad rivers of the London highways, the foot-passengers are the lighter craft skimming the streamlets of the metropolitan sideways. For, according to a recent Report of the Society of Arts (see p. 594, *ante*), "On the Roads and Pavements of London," there are not less than three-quarters of a million of such foot-passengers wending their way daily through the principal thoroughfares of the City alone,—a number which is equal to 1-4·66 part of the entire population of the capital.

In the old Roman roads the footway was placed in the centre of the highway, and raised some feet above its level; but then, of course, there were neither houses nor shops skirting the greater proportion at least of the thoroughfare. It is upon the foot-passengers, however, rather than those riding in the roads, that the shopkeeper has to depend for his custom; for what to the people out in the highways, incased in cabs, packed in omnibuses, or lolling in carriages, is the showy or tasty decoration of the shop-windows. Indeed, the "shop-front" is set out specially to catch the eye of the pedestrian, from whom the knowing proprietor of the "emporium," in every crowded thoroughfare, is well aware that he mainly derives his income. The rents paid for the shops in the Poultry, Cornhill, Regent-street, or any part where the traffic is inordinate,—or, indeed, in the Burlington and Lowther Arcades, where the passers-by are *solely* pedestrians,—are sufficient proof that had the foot-pavements of the metropolis been placed, Roman fashion, along the middle of the road, the retail trade of London could never have been developed.

But, not only are the foot-pavements the main source of revenue to the proprietors of the "establishments" whose shop-fronts they border, but they are necessarily a source of infinite convenience to those whose business or pleasure leads them to tread the London causeways; and it is the ease, afforded the pedestrian by a well-paved path, as well as its immediate proximity to what the French call "*magazins*" of trade, which causes a special stroll to look at the shops in the principal streets of the metropolis, to be such a special delight even to the tight-booted and tenderer portion of humanity. To those who have ever known the Arcadian charms of living in an *untrottoired*, undrained, and unlighted primitive German town, the horrors of a walk through the streets must be indelibly impressed, not alone on the mind, but on the feet of even the "*stout-soled*" traveller; for there the stones of the *chaussé* are as hard and knubbly as if they were so many petrified potatoes, and the pathways consequently about as level as corrugated iron; so that the pedestrian is literally footsore with even a quarter of an hour's promenade through the picturesque, but particularly unpleasant, city.

And yet even in this mighty "Great Metropolis," which is assuredly the best-drained and best-watered capital in the wide world, foot-pavements were a peripatetic convenience unknown in the land till the reign of George III., though there can be no doubt that they must have added as much to the retail trade of the neighbouring shopkeepers as the construction of roads did to the wholesale commerce of the entire country.

Let us see, then, what is the gross cost of these viatorial comforts, and what the average annual expense of their repair; and then, adding these amounts to the previous outlay on the roadways, thus arrive at something like a rough estimate as to the expense of the metropolitan streets *in toto*.

Now the average width of the London foot-pavements may be set down at 7 ft. In Regent-street and such like highways the *trottoirs* are about 10 ft. wide, whereas in the smaller and less-frequented byways the breadth of the foot-paths does not exceed 5 ft. The cost of the Yorkshire "flagstones" required for laying down such a pathway, labour included, may be safely taken at 14*s.* per square yard: hence for two and a half, or (let us say) two square yards, the expense would be 28*s.* for each yard "run." Add to this 4*s.* 6*d.* per lineal yard for the kerb-stone, and 9*s.* for each lineal yard of the channel, and we have a total of 41*s.* 6*d.* for the average cost of every yard run of the footpaths of the metropolis. However, so as to avoid making big figures appear bigger than they otherwise would, let us estimate the expense of laying down the London foot-pavements roughly at 2*l.* the yard run. Then the sum to be worked is an exceedingly simple one: for $1{,}760 \text{ yards} \times 2 = 3{,}520$; so that the cost of forming these same foot-paths would amount to about 3,500*l.* per mile.

But, the total length of the metropolitan streets within the Registrar-General's district being 2,500 miles, and each highway having a double run of such sideways (*i.e.*, one on either side of the street), it follows that we have only to multiply 3,500*l.* by 5,000 in order to arrive at the aggregate amount required for their construction. Accordingly, we arrive at the conclusion that the foot-pavements alone of London must have cost not less than 17½ millions sterling; and this sum added to the 20 millions originally required to be expended on the roadways brings the total expense of constructing the metropolitan thoroughfares up to 37½ millions of pounds altogether.

And now for the amount needed annually for the repairs of these same footways. A well-constructed *trottoir* will last, with but slight occasional relaying in places, some seven years, even where the traffic of foot-passengers is excessive; and where such traffic is comparatively slight, as long as fifteen years or more. Hence, let us say, in order to err on the right side, that the average duration of the London foot-pavements is twelve years; then $\frac{17{,}500{,}000}{12} = 1{,}458{,}333$; so that, in round numbers, the average sum of money required annually for the repair of the

metropolitan footpaths would amount to about one million and a half sterling. And hence, as the repairs of the united roadways cost somewhere about ten millions, we come to the following general conclusion :—

Gross cost of constructing the whole of the London roads and foot-pavements	£37,500,000
Gross amount required annually for their repair	11,500,000

"Prodigious"!

PUGIN'S ARCHITECTURE OF NORMANDY

IT is just forty-seven years since John Britton wrote his modest preface, in the capacity of editor, to the original edition of "Specimens of the Architecture of Normandy," for which he furnished the literary portion, and the eldest Pugin the drawings, which were translated in such a masterly and beautiful manner into engravings by the brothers Le Keux. The work originated, we are told in the preface, "with the two artists whose names appear on the title-page, and who, from predilection for architectural antiquities, and from some experience in the execution of works illustrative of the ancient architecture of England, persuaded themselves that a series of engravings which should define and clearly exemplify the Christian architecture of Normandy would be at once useful and popular. Influenced by corresponding feelings and convictions, the writer of this preface was induced to co-operate with his friends, and enter warmly and zealously into the plan." Britton goes on to say that illness had prevented him from personally visiting the buildings illustrated, as he had intended, and that he could not satisfy himself consequently in the execution of many parts of the work, though delaying its publication for some time, in consequence of deficiency of information which he might have obtained in person on the spot, but could not obtain by correspondence. This may fairly be held as partially the reason, in conjunction with the comparatively deficient archæological study of Mediæval architecture at that time, why Britton's literary notices are no longer up to the required standard in many points, and have needed revision, correction, and enlargement, to an extent which would not probably have been needed had the editor's characteristic enthusiasm and industry had fair play. His able coadjutors in the artistic department of the work were under more fortunate circumstances, and their labours were complete proportionately and admirable. Since they "persuaded themselves" that architectural remains in Normandy would interest people in England, a generation or two of architects have been over the same sketching-ground, which has become almost a common property for travelling students of architecture, who need no "persuasion" now to believe in its interest, and illustrations of its remains have been produced pretty plentifully. Yet it is the judgment of the able editor of the new edition,* and one which every one acquainted with the subject will probably coincide in, that this is still the chief standard work on the architecture of Normandy; and that not only would it be difficult to select better examples for publication than those which were chosen by Pugin, but that no work has appeared since which can supersede it in beauty of engraving and accuracy of measured drawing. "In fact," says Mr. Spiers in his preface to the new edition, "when we consider the immense progress which has taken place during the last forty years in the true knowledge of Mediæval architecture, and how, step by step, the vague theories of its rise and development have been displaced by sound scientific knowledge, we are astonished that drawings, made so long ago, should not only show a perfect mastery of rule and compass, but display the most intimate acquaintance with all the artistic and scientific problems of the buildings represented. In these drawings the formation of the ribs and webs of the vaulting, their true curvatures, and the constructive lines of every part of the buildings are indicated with a truth that few draughtsmen of the present day could hope to rival; whilst the character and vigour of the foliage, and other carved ornament, especially that of the Flamboyant period, has been rendered in a manner that has never been equalled in any more recent publication."

Looking again over the engravings of Le Keux after Pugin, thus endowed with a second lease of life by republication in a more complete setting than before, as to literary illustration and bookbinder's getting-up, one must admit that they fully vindicate what is here said in their commendation. And one may call the attention of publishing architects to the superior effect and illustrative efficiency of these finely-executed engravings over illustrations by other processes which have largely usurped the place of engraving among publications by the younger generation of architects, especially in the present day. Lithography and photo-lithography have probably simplified and cheapened the process of publishing illustrations to architectural books, and have their value as giving a more or less literal transcript of the author's original drawings; and etching has its very high claims to preference where picturesque effect is a main object. But the object of architectural illustration is really, in works intended for architects at least, the accurate and permanent representation of the facts of structure and design in a building. With these given correctly and in a permanent form, the architect can mostly draw his own conclusions as to effect, and at any rate is more likely to trust to conclusions drawn in this way than to picturesque sketches, which do not show detail clearly, and may be in more than one way untrustworthy. We have a great deal of the "picturesque sketch" style of book illustration at present in architectural works, but very few, if any, publications which can show drawings so careful and correct, so minute and refined in execution, as these engravings by the brothers Le Keux. It is true that they do not shine so much in views; and that the perspective views, for instance, of the Palais de Justice at Rouen, or of the Château Fontaine le Henri (plates l., lxxi.) are rather thin and bald in appearance from the absence of shading and effect, though beautifully "touched" and manipulated, the latter especially, in regard to detail and surface character. But such accurate and finely-executed drawings of architectural construction and detail as the section and elevations of the choir compartments of Bayeux (plates xxxiii.–iv.), for instance, are now hardly seen except in French architectural works. There is something, of course, to be said in favour of the feeling that architecture is building and not drawing, which has been, perhaps, at the root of some of the preference for "sketchy" lithographs among the younger generation of architects. This contempt for mere drawing has led to one or two publications, and those by names standing high in the profession of modern architecture, in which neglect of all the refinements of drawing has been carried to a curious and not very admirable result. But there is a practical value also in this accurate and precise engraving of Le Keux's: it will stand wear and tear. It may be safely said that very few of the lithograph illustrations of the picturesque school of architects could have the chance of republication forty or fifty years hence, even if they are worth it. Drawings on stone cannot be kept so long with convenience, and the impressions are worn and ineffective after a certain amount of use. But here are the reprints of the original engravings after Pugin's drawings as good and clear as ever. This is certainly a point to be looked to by those who are ambitious of publishing for the future as well as for the present. In every respect the republication of Pugin and Le Keux's Normandy, and the excellent place which it is calculated to take among the similar works of the present day, is an example of the permanent value of work that is thoroughly and conscientiously done at the outset.

Had the author of the book worked in the present day, some things which are carefully and elaborately portrayed in it would have received less attention. The earlier period of the Mediæval revival was, as every one knows, marked by an admiration for the florid late Gothic, with its profusion of carving and detail, which would be completely disclaimed by the Gothic architect of the present day. It may have been as well, perhaps, that some architects were disposed at that period to illustrate Late Gothic, otherwise there would seem to be little chance now of its getting illustrated or recorded at all, in England at least. There is, however, a good deal of bad, overdone, wiry detail drawn out and depicted with greater care in Pugin's work than it perhaps merited. The most valuable part of the illustrations is that which relates to the churches of the *Abbayes aux Hommes* and *aux Dames* at Caen, and to Bayeux Cathedral. The delineations of the two great churches at Caen have been further supplemented by Mr. Spiers by a plan of that of *Abbaye aux Dames*, from measurements taken by himself for this work. This plan, with its long unbroken vista of nave and choir,—long to excess in proportion to width,—serves to remind the reader how inadequate outline drawing is, after all, to give the perspective effect of such an interior; for the accompanying interior view conveys no such effect of length, aërial and colour perspective being wanted to help out the rendering. The ornamental details of the Abbaye aux Hommes, almost Classic in their severity, and the lines of construction of the vaulting are given with a precision and finish of execution which leaves nothing to be desired. We are not, however, of those who would find nothing admirable or valuable in the less pure, or, at all events, less severe modifications of later Gothic. Such a building as the Palais de Justice at Rouen, though corrupt and over-ornate, is admirably suggestive for a civic treatment of Gothic; and there is a refinement and suitability of general design, in spite of the bad detail of the buttresses, about the gateway of the nunnery of St. Clair at Rouen (plate xlvi.), with its three-centred round arch for the doorway and its pointed arch above, which even the most enthusiastic adherent of transitional work must admit; there is an originality and effectiveness, too, in the manner in which the pedestals of the statues in the tympanum are "evolved" out of the tracery, which is very natural and picturesque. There is much that is suggestive for modern design, too, in the Hôtel de Bourgtheroulde at Rouen; bad and indefensible as are some of the details, it is in general aspect an instance of a style of "Free Gothic" which effects the combination of the picturesque with the convenient and suitable for modern building, more effectually perhaps, certainly in a more interesting way, than what has been called recently the "Free Classic." Wiry as the details are, there is much fancy in them, and there are suggestions that would very well bear working out in better form.

The new matter supplied by the present editor is distinguished by brackets, and includes additions to the historical and descriptive analysis of the buildings illustrated, in some cases correcting conclusions of the original editor which modern archæological and architectural research has shown to be erroneous; and a short essay is added on the development of groined vaulting and its influence on the style, especially as illustrated in the churches of the Abbaye aux Hommes and the Abbaye aux Dames. This essay does not contain anything in addition to what is now known or admitted by all who have studied the Mediæval style as all true styles of architecture must be studied—on the basis of its constructive principles; but it places the leading points of the subject in a very concise and intelligible form; and the consideration of the vaulting problem as the real main element in the development of Mediæval building is so all-important to the right understanding of Gothic architecture, that it can hardly be repeated too often or too prominently whenever the subject is critically dealt with. The mere fact of the insertion of such an essay here, in place of the vague and varying theories about the "origin of the Pointed style" which used to appear in works of the period to which the original edition of this book belongs, is a proof how far we have progressed in architectural analysis in the meantime; and how completely the sentimental theory of Gothic is now put aside. Among the editor's miscellaneous additions we come upon some remarks, in reference to plate i., upon the Caen stone of to-day in comparison with that used in the abbeys and churches of the Caen neighbourhood in the Mediæval period. An examination of old and now deserted quarries* in the district, some of them almost under the churches which were built from them, showed a quality of stone similar to that used in the ancient work, but very superior to what is now sent and accepted as Caen stone. This is not an uncommon case; indeed, when a particular locality acquires a name for the quality of its stone, it is only reasonable to expect that bad stone will be sent as well as good to meet the demand. This

* Specimens of the Architecture of Normandy, from the Eleventh to the Sixteenth Century. Measured and drawn by Augustus Pugin, Architect. Engraved by John and Henry Le Keux: with Historical and Descriptive Notices by John Britton, F.S.A. New edition, edited by R. Phené Spiers, A.R.I.B.A., Master of the Architectural School of the Royal Academy, &c. Blackie & Son: London, Glasgow, and Edinburgh.

* Some particulars of these quarries, by the conductor of this journal (who visited them, accompanied by Mr. C. H. Smith), will be found in one of our early volumes, the result of personal examination.

explains the anomaly in some of our own cathedrals, where we find (or did find before they were restored) the parts of the latest date the most decayed, though built with stone of the same class and from the same district as the rest. The description and analysis of the church of the Abbaye aux Hommes is largely supplemented, partly with the results of the researches of M. Ruprich-Robert, whose name is well known to our readers, and under whose professional care the building is now placed. M. Bouet has discovered evidence of the choir having been largely repaired and rebuilt in the seventeenth century, but with such fidelity that it is difficult to tell the restored work from the old. Such a restoration must be a fortunate, we might perhaps say almost a unique one.

The noble simplicity, combined with elegance, of the design of Bayeux Cathedral is admirably set forth in the fine series of plates devoted to it; the inherent merit of the architectural design, the peculiarity and effectiveness of the decoration (much of it given here in detail), and the admirable manner in which the drawings of the construction are made out, render this one of the most interesting of the sets of illustrations in the book, and one of the most instructive to the student. Among curiosities of construction the section of the extraordinary pendentive of the roof of the Lady Chapel at Caudebec (plate lxv.), a most interesting delineation of one of the most singular pieces of masonry construction in existence, is rendered further interesting by the extended note appended by the present editor, giving the account of how the construction was investigated by A. Pugin, assisted by Mr. Ferrey and Mr. Talbot Bury, and how the latter nearly made his mausoleum of the space or pocket between the main vault of construction and the pendentive, having got in through a hole in the tufa filling up the groining at the top, which proved easier to get in by than to get out by,—"facilis descensus—sed revocare gradum," &c. The pendentive, it may be remembered (for these particulars originally appeared in our pages), is carried in a way it would scarcely occur to any one to suspect, by a monolith-key 17 ft. in length, held up at the top by the main vaulting ribs, and supporting at its foot the ribs of the pendentive, which turn over and descend upon it. Nothing could be more ingenious, or more absolutely stable, so long as the key-shaft does not give way; but if we come to talk about principles of construction, such a specimen should, perhaps, hardly have been specially dwelt upon by the master of the architectural school of the Academy, without it being pointed out that it depends entirely upon the *cohesive* strength of the key-shaft,—an inherently wrong principle in masonic construction, however successful it may have proved, so far, in the present instance.

The two plates given in the original volume of the specimens of stained glass are published in the new edition without the colour, which, owing to the deficient means of colour printing at the time of the first publication were, as Mr. Spiers says, rather misleading than otherwise. The plates are hardly of any value without the colour, however; as specimens of forms of "leading up" glass, as suggested by Mr. Spiers, they really present little or no interest.

We welcome with great pleasure a republication of an excellent work under a very good re-editing, and with additions which increase its value considerably so far as the letter-press is concerned. The real value of the book, however, lies in the plates, which are as instructive to the student as they are interesting to the advanced architect. The new edition should find a place in every good architectural library.

THE ROYAL ARCHÆOLOGICAL INSTITUTE.

ACCORDING to arrangement the Royal Archæological Institute of England have made the neighbourhood of Canterbury the scene of their annual excursion, commencing on Tuesday, the 20th inst.

The preliminary meeting was held in the town-hall, at which a congratulatory address was read by the town clerk on behalf of the mayor, aldermen, and citizens, welcoming the members of the Institute to the ecclesiastical capital of England. Reference was made in the address to the fact that Canterbury might be almost considered the birthplace of the Archæological Institute since it was there that the British Archæological Association (from which the Institute separated) held its first meeting.

After a *déjeûner*, the company proceeded, under the guidance of Mr. John Brent, F.S.A., Mr. J. H. Parker, C.B., and Mr. G. T. Clark, to perambulate the city. The first place of interest visited was the Dane John. The city walls and mound were inspected, various opinions being offered as to the origin of the mound at that spot. Amongst the most notable objects visited were the Norman Keep, a very large and grand ruin, probably of the date of William Rufus, now used as a coal-store by the gas company; and the small but memorable church of St. Martin, the foundation of which is attributed to St. Augustine, and in the external wall of which Mr. Parker pointed out a small portion of widely-jointed masonry, which might be of as early a date as the period of that saint who first introduced Christianity to these isles in the Anglo-Saxon age. The chapel of St. Pancras, in which the good Queen Bertha, wife of Ethelbert, is presumed to be buried, was also viewed. A temporary museum at St. Augustine's College and another in the Cathedral Library had been arranged, in which were stored objects of great interest.

On Wednesday, the meeting of sections, commenced at ten o'clock in the hall of St. Augustine's College. This presents a very different aspect from its state when the Archæological Association held its first meeting in this city. It was then degraded to a mere public-house. It was consigned to the hammer in 1844. The purchaser was Mr. Beresford Hope, who forthwith began its restoration, under Mr. Butterfield, and thenceforth it has been devoted to the purpose of a college for the education of missionaries. The range of edifices thus owe their preservation, their restoration, and their utilisation, to one of the most devoted and able members of the Institute, and when Mr. Hope was voted to the chair of the architectural section, the applause with which he was greeted was very cordial.

The paper read was one by Sir Gilbert Scott, on "The Transition of Styles of Architecture, as illustrated by Canterbury Cathedral." Sir Gilbert said his paper, though all re-written, contained much that he had stated before in his lectures at the Royal Academy, and which will be found in our pages. He traced the growth of the arch from the time when it was a mere opening in the wall or vault, with a flat stone over it, through its successive developments, to the pointed arch of early English days, illustrating every step by drawings, taken not only from Canterbury Cathedral, but also from Sens, Noyon, Caen, Glastonbury, and many other places. Mr. Godfrey Faussett's paper on "Canterbury till Domesday," which was read for the author, then came on in the section of Antiquities, which was presided over by Mr. G. T. Clark, F.S.A. Dean Stanley was to have read a paper on "The Monastery of Christ Church, Canterbury"; but as he had not arrived at half-past one o'clock, it was deferred till the *conversazione* in the evening. It was then read in the cathedral library before a large assemblage.

On Wednesday afternoon there was an excursion to Chilham Castle, the seat of Mr. C. S. Hardy, who admitted a large party to view the old keep. Mr. G. T. Clark gave a discourse, explanatory of the structure, and after paying a visit to Chartham church, the party returned to Canterbury. On Thursday morning the annual meeting of the Institute was held, when Colchester was fixed upon as the place for the next meeting. About midday the members went to Sandwich and the ruins of Richborough Castle, returning in time for a meeting in the evening, at which several papers were read. The proceedings were resumed on Friday morning, when a meeting of the Historical section was held in the hall of St. Augustine's College, under the presidency of Sir John MacLean. Mr. J. B. Shephard, of Canterbury, read a paper on "The Archives of Canterbury Cathedral." Amongst the deeds shown was the original deed, signed (with a cross) by William the Conqueror, and also by his queen, in addition to the two archbishops and four bishops, settling the long-standing dispute as to the primacy and supremacy of the Archbishop of Canterbury over his Grace of York.

The section rose at eleven o'clock, at which hour the Rev. E. Venables commenced in the Chapter House, before a large audience, a discourse on the Architectural History of the Cathedral. A perambulation of the cathedral afterwards took place, and when the party arrived at the scene of Beckett's martyrdom, Canon Robertson read a short paper, in which he tried to demolish the tradition that the flagstone on which Beckett fell is still there, marked by having a small square piece let into it, where it is related a portion of the original was cut out, and sent to Rome and there preserved, because a portion of the martyr's blood fell upon it. Repeated inquiries in Rome had failed to find the stone. Archdeacon Harrison said he stood by the tradition. A perambulation of the precincts followed, and a further sectional meeting was held, at which Mr. R. E. Pullan read a paper on "The Revival of Polychromatic Decoration in Churches; the pith of which our readers know."

On Saturday, the archæologists made an excursion to Hythe and Saltwood, calling at Westenhanger and Lympne, and inspecting the numerous ancient monuments in that district of Kent. They were entertained at luncheon by the Mayor of Hythe, and after a long pilgrimage returned to Canterbury early in the evening.

On Tuesday the Institute met at Dover, the members of the Kent Archæological Society, who were having their annual outing in that town, and a paper on the Pharos, by Mr. C. Roach Smith, was read. Then the combined party, to the number of about 300, proceeded to inspect the Castle, again under the guidance of Mr. G. T. Clark, whose initials are well known to our readers. After seeing the armoury they were conducted to the top of the keep. Mr. Clark ascended one of the towers in the angle, and proceeded to address his audience as to that part of the castle (the north-east angle). He informed them that they would be conducted down a narrow staircase which was constructed through the thickness of the wall itself, and which would only accommodate about one person. Accordingly all or nearly all made their way down the steps. They safely arrived at the bottom, and after inspecting the old well and the ancient chapel, assembled in the courtyard. Mr. Clark took up a position close to the gateway affording an entrance to the keep, and in the course of a comprehensive lecture said that the hill on which the grand old pile which they had been visiting was situated was, no doubt, taken advantage of by the Celtic inhabitants of the island. They had considered it a convenient place for the defence of a tribe, and the Romans, finding a place to land, made use of it, and had not only left their marks upon the roads around, but had erected a watch-tower. The Saxons,—not only our predecessors, but our ancestors,—had left traces of their earthworks, but with the Normans came masonry into Britain. He did not mean to say that we had no traces of earlier masonry in ecclesiastical edifices, but so far as he knew we had no traces of masonry for military defence before the eleventh century. There was none that, so far as he knew, could be traced back further than the Norman period. At the conclusion of Mr. Clark's address, the party separated, and at four o'clock met at the Town-hall to dine, under the presidency of Lord Amherst, president of the Kent Archæological Society. The concluding meeting was held in the Town-hall, Canterbury, Lord Tabot de Malahide presiding, and it was resolved, "That the best thanks be given to the Mayor and Corporation for the use of the Guildhall, to the Dean and Chapter for the use of the Library, and to the Warden of St. Augustine's College for the use of the hall of the College."

To those very few who remembered the original meeting in Canterbury, more than thirty years ago, the whole affair seemed but a pale reflex, notwithstanding the number of able men who took part in it. The fact is, they found little new to say or do.

VISIT TO ST. ALBAN'S.

ON Tuesday last, on the invitation of Sir Gilbert Scott, R.A., as president of the Royal Institute of British Architects, the Vice-Presidents and Council of the Institute, as well as a number of private friends, paid a visit to St. Alban's Abbey, where Sir Gilbert gave some account of its history, and described the various objects of interest to be found in it, and the work that had been done. He considered that the Anglo-Saxon Church built by King Offa was entirely swept away, and the Norman Church was built by Paul of Caen, the first Norman Abbot of St. Alban's, of Roman tiles and stones brought from the ancient city of Verulam. This abbot was very ambitious, and made his church half as big again as the metropolitan cathedral his cousin had built at Canterbury. John de Cella, the twenty-first abbot, began the trans-

formation of the west front from the Norman to its present style of architecture. He began it in 1198, and at his death his successor, William de Trumpington, modified the details of the work in the most reckless manner, and from being very rich changed it to comparatively poor work. Sir Gilbert then proceeded to point out the principal features of the west front and its portals, and the difference between the work of John de Cella and William Trumpington, that of the former being extremely beautiful. The interesting paintings which were discovered a few years ago on the west faces of the Norman piers on the north side of the nave were next described by Mr. J. G. Waller. One of the paintings is a gigantic representation of St. Christopher with the infant Christ. Sir G. Scott explained how it was that five arches on the south side of the nave are of the Decorated period, while the remaining arches on that side are Early English, and the opposite arches are Norman. We learn from a contemporary record that in the year 1323 this part of the church suddenly fell to the ground. The nave was then, said Sir Gilbert Scott, the "church of the laity," and as there were a number of men and women in the church at the time, it was attributed to a miracle that there were no lives lost. These pillars were partly rebuilt by Hugh Eversden, who also completed the Lady Chapel, and who died in 1326. The party proceeded to the choir and the presbytery, where the work of restoration has been, to a great extent, completed. The tower, which, our readers will remember, was found to be in a most dangerous condition, has been made perfectly safe, and has been stripped of its external plaster, so as to expose to view the Roman tiles of which it is composed. All the structural parts of the choir, presbytery, transepts, aisles, and the Saint's Chapel have been restored, and the whole fabric of this part of the church has been strengthened. The roofs have been cleaned and restored. It is rather remarkable that, in restoring the choir ceiling, under the paintings of 1680 older paintings were found, of which the later were but rude imitations. The original paintings have been cleaned and exposed to view. They are believed to be the work of Abbot Wheathamstead (*circa* 1440). The visitors proceeded to the Saint's Chapel, where Sir Gilbert called their attention to the superstructure of the Shrine of St. Alban, 2,000 fragments of which were brought to light in 1872 and illustrated in our pages. Mr. Ridway Lloyd made some remarks explanatory of the altars and tombs in this part of the Abbey. On arriving at the ante-chapel of the Virgin, the pedestal of the shrine of St. Amphibalas, fragments of which were also discovered in 1872 and have been since put together, were described.

Some 2,000 fragments of beautiful mouldings and sculpture were arranged in the south transept for the inspection of the visitors.

The party were afterwards entertained at dinner in the Town-hall, where some apposite speeches were made by the President, Sir Edmund Beckett, Archdeacon Grant, Precentor Venables, the Rev. J. Lawrence, and others, the toasts including "The Health of the Founder of the Institute, Professor Donaldson," who responded.

THE OPERA-HOUSE ON THE EMBANKMENT.

ACCORDING to notice, Colonel Beresford called the attention of the House of Commons to the intended encroachment by the erection of the New Opera-House. In the course of his observations, he said, that some months back the Metropolitan Board of Works had let a portion of this land to a person named Bulmer, at a rental of 3,000*l.* per annum. That lease was subsequently transferred to Mr. Mapleson, who paid Mr. Bulmer 10,000*l.* for it. Shortly afterwards Mr. Mapleson obtained permission from the Metropolitan Board of Works to advance his proposed building 75 ft. nearer to the roadway, thereby giving him an additional 5,000 square feet, on condition that he made two short roads 20 ft. wide on either side of the building. He, however, was prepared to show that Mr. Mapleson would have been compelled to execute these roads for his own purposes, and that therefore he was not entitled to any additional land by way of compensation for making them. The two houses of which it was said Mr. Mapleson could not get possession, had now, he believed, been secured by that gentleman, who had let the ground at a considerable rental for the erection of a Royal Academy of Music. Mr. Mapleson was not allowed to have his own architect or contractor. The architect connected with the Board, Mr. F. Fowler, was to be his architect; and his contractor was named by the Board. Surely this was in violation of the Metropolis Local Management Act, which provided that no officer or servant of the Board should be concerned in any contract or work made or executed by the Board. Mr. Fowler was also to be the architect of the Royal Academy of Music. He begged to move—"That, in allowing the building frontage on the Thames Embankment to be advanced to within 30 ft. of the roadway, the Metropolitan Board of Works is acting in contravention of the policy intended to be affirmed by the resolution of this House, July 8, 1870, whereby the Embankment was secured as an open space for the use of the people."

Sir J. Hogg defended the conduct of the Board, and said the land was originally divided into two parts, and in November, 1873, tenders were invited. Only one was received, which was declined, because it did not come up to the price their land was thought worth. The architect was next directed to negotiate with several gentlemen who had privately signified their desire to become purchasers. None of them came up to the price. Again, in October, 1874, other tenders were invited, and one for 3,000*l.* was accepted, the valuation of the architect having been considerably below that sum. The Metropolitan Board of Works, therefore, had made a good bargain for the ratepayers. He knew nothing of any negotiation between Mr. Bulmer and Mr. Mapleson. They made Mr. Bulmer complete his contract and allowed him to hand it over to Mr. Mapleson. The hon. member said that Mr. Mapleson was not allowed to have his own architect and his own contractor. He must give the most unqualified denial to every word of that statement. There was not a shadow of foundation for either of those statements. The facts were these:—When Mr. Mapleson got the land, a certain number of architects thought proper to send designs. Mr. Fowler sent in a tender under an "initial"; two plans were selected, one happened to be Mr. Fowler's and another that of Mr. Phipps,—one being a member of the Board and the other a friend of his own.

Colonel Beresford rose to order. He begged to tell the hon. gentleman that his authority for the statement he had made was Mr. Mapleson.

Sir J. Hogg must give the most direct contradiction to the statement. Then, as to Mr. Webster, the Metropolitan Board had no contractors. Their usual course was to issue specifications: tenders were sent in, and the lowest tender was always accepted if it were that of a fit and proper person. Mr. Webster had done several works for the Metropolitan Board remarkably well, but there was not a shadow of truth in the statement that he had been thrust down the throat of Mr. Mapleson.

Mr. Beresford Hope also combated observations made by Colonel Beresford, and the motion was ultimately withdrawn.

Colonel Beresford's assertion as to Mr. Mapleson's statement will of course be inquired into.

BUILDERS' BENEVOLENT INSTITUTION.

THE 28th annual general meeting of this institution was held yesterday (Thursday), at Willis's Rooms, St. James's, Mr. George Dines, president, in the chair. There were also present Messrs. George Plucknett (Cubitt & Co.), treasurer; Thomas Stirling, F. W. Keeble, W. J. Mitchell, James Simpson, M. Hall, — Fry and Thomas Patrick. The annual report and balance-sheet, which were unanimously adopted, on the motion of Mr. Mitchell, seconded by Mr. Simpson, stated that the directors had purchased the sum of 914*l.* 15*s.* 7*d.* stock, 3 per cent. Consols, for the relief fund, making a total of 18,434*l.* 9*s.* 9*d.* stock,—viz., 14,903*l.* 9*s.* 4*d.* for the relief fund, and 3,531*l.* 0*s.* 5*d.* for the building fund. The directors are now taking the necessary legal steps to transfer the sum subscribed to the building fund to the general relief fund, the idea of erecting almshouses having been abandoned, as the pensioners prefer to live with their friends. When this transfer is effected, the directors will have an additional sum of 105*l.* per annum to distribute to pensioners. After appealing for increased subscriptions, the report alluded in feeling terms to the recent death of Mr. A. G. Harris, after twenty-eight years' faithful service as secretary. The balance-sheet showed the receipts from all sources to be about 3,000*l.*, and a balance of 380*l.* remains in hand on the year's account. Votes of thanks to the patrons, president, vice-president, trustees, treasurer, directors, hon. secretary for ball (Mr. J. T. Bolding), hon. auditors, and hon. solicitors were duly accorded; Mr. George Plucknett was re-elected treasurer; Sir Samuel Morton Peto, Alderman Sir James Clarke Lawrence, M.P., and Messrs. George Plucknett and C. T. Lucas were re-elected trustees; and on the motion of Mr. George Plucknett, seconded by Mr. Thomas Stirling, Mr. John Aird, jun., was unanimously elected president for the ensuing year.

ABERDEEN "PALACE BUILDINGS."

THE Palace Buildings in Union-street have been recently opened. The hotel occupies the whole of the floors above Union-street. Its main entrance is from Union-street, the first floor being reached by a grand staircase, lighted from above. Immediately at the top of the stair is a bar and landlord's parlour, on either side of which corridors lead to the various apartments and different parts of the hotel. To the left are a coffee-room and drawing-room. The former is a spacious apartment, 50 ft. long by 24 ft. wide, with cheerful views from the windows. The drawing-room, on the same side, is about 35 ft. by 35 ft., with a corner cut off. Immediately behind this room to the south is a suite of rooms suitable for a family, with every convenience. On the right-hand side on entering is the commercial room, the dimensions of which are 35 ft. 6 in. by 20 ft. 6 in., with an ante-room, also to the front, for writing in, &c.; and, adjoining the commercial room is a smoking-room, 24 ft. by 18 ft. Immediately above the principal entrance, and between the commercial room and coffee-room, is a large parlour. Another suite of rooms, opposite the bar on the right hand side, fills up the centre division of the building. Passing by a short flight of stairs to the lower portion of the building, we have over the side entrance two large stock-rooms, a billiard-room, and luggage-room, &c. Upon the second-floor, the south-west corner is set apart for the culinary department. The kitchen is 35 ft. by 17 ft., and has a cheerful look-out. The kitchen communicates with the servants' hall, servants' bedrooms, pantries, &c., all shut off from the main building. The remainder of this floor is taken up with bedrooms and dressing-rooms, parlours, bath-rooms, &c., entered from two wide corridors traversing the whole length of the building on either side. In the centre, between these corridors, is the housemaids' room, which is placed in communication with all the private rooms by means of electric bells. The public rooms on the floor below communicate with the bar by a similar arrangement. The upper story is wholly taken up with bedrooms and their adjuncts, housemaids' accommodation, &c. On this floor alone there are thirty-two bedrooms, all of them large and airy. The total number of bedrooms is over seventy-five, including those in the suites of rooms. From all the rooms in the hotel, without almost any exception, there is a cheerful look-out; and from the upper windows the suburbs may be scanned for miles around. At the roof of the building are the water-cisterns, affording an ample supply of hot and cold water to the whole house. A hydraulic lift, capable of lifting a ton weight, is placed in the lower floor, and acts as a common carrier to the several floors of the hotel. The Palace Hotel has been leased by Mr. Mackie, late of the Northern Hotel.

Our Water Supply.—Mr. Bailey Denton writes:—"During the last month there has fallen on the surface of the country, with but few places excepted, within the short period of one hour, as much rain as would, if conserved, supply the entire population with water for domestic and other purposes for a whole year; there has fallen within the present year (1875) sufficient rain 'per square yard of surface' to furnish 50 per cent. more water than would satisfy each unit of the population with all required for drinking purposes. Ought an inquiry into the capability of utilising such excesses, and so equalising extremes, to be delayed, when it is well known that, even at this moment, while in the midst of the deluges of rain that have occurred, there are places where an insufficient provision of water exists?"

THE BASILICA OF ST. CLEMENT, ROME.

IT is a thing most full of marvel to one that has stumbled among the dry bones of archæology, in a piteous search for something of which he may say "Behold, this one has something of life," to see those dry bones, gathered together and clothed with flesh, standing up every man on his feet. Yet before him who turns the pages of "*Saint Clement, Pope and Martyr*," a part of this great army files, very flesh and blood. Nor is the vision faintly limned: the shadow of death, which hangs so heavily over the remains of the past, has been pierced and driven by those rays of faith which light up every point towards which our writer turns.

We propose, however, to give merely an epitome of the architectural and archæological matter which this valuable work contains; and we undertake the task, because, owing to the large amount of theological and other learning with which the descriptions of the basilicas of San Clemente is interwoven, in the ordinary course of things our profession would lose the benefit of the author's labours.

The book which, in its present form, was published here in 1873, contains some 450 octavo pages, of which the first fifty are given to the introduction. This opens with the description of a Pagan tomb, still existing. "In a corner of the inclosure are ruined *columbaria*, probably for the dependents, with broken cinerary urns still in their niches; and in another place a vast massive round "monument of stone for the head of the house." The author traces the adaptation of these *prædia* to Christian burial, and thus explains the occurrence of Pagan ornaments in early catacombs. He dwells on the fact that classical learning is not sufficient to elucidate Christian ruins, and goes on to some account of Christian cemeteries and the reason of their construction. He writes:—"About Rome the Christians dug into the hill-sides, as the Etruscans had done before them." "They were not thereby precluded from monuments or chapels above ground, and in case of distinguished martyrdom they were sure to construct such *memories*, which, when persecution ceased, became basilicas." Passing over much on relics, the duty of burying the dead, prayer for the dead, the sign of the cross, persecutions, &c., we come back to the catacombs. "After the death of Julian the Apostate in 363, De Rossi says that the use of subterranean cemeteries visibly declined. In the public distress they were neglected and fell into the hands of private fossors, and after the year 454, he finds no interment in them at all. The liturgies of the second half of the fifth century constantly refer to burials in the basilicas; and in the sixth century burial was common within the walls of Rome. As for the Pagan emperors, the first direct attack upon the cemeteries was that by Valerian, in 257, and it only lasted three years..... In 303 Diocletian burnt and ravaged everything..... But the invasions of the barbarians were the real cause of the destruction of the cemeteries..... In 648, 682, the bodies of the martyrs were brought in from the suburban towns, such as Porto and Nomentum. Astolphus and the Lombards ruined the cemeteries in 760. Paul I., who was created Pope in 757, brought the bodies of the martyrs into the city, because the cemeteries were in decay. Adrian I. and Leo III. tried to restore them. Paschal I., in 817, removed the body of St. Cecily, and many others. Sergius II. and Leo IV. brought in some that were still left. Nicholas I. attempted, in 867, some catacombic restorations, and they were the last..... The substructions of St. Peter's conceal the Vatican cemetery. The new basilica of St. Paul shows that the Popes have not yet forgotten the grave of either Apostle. But the Basilican churches of Rome were sometimes built upon the martyr's own house, whether interred there, as in the case of SS. John and Paul, officers in the army under the apostate Julian, or not, as in the instance of St. Clement, who was martyred in the Crimea." The remaining few pages of the introduction are taken up with the subject of church pictures looked at in different lights. Considering them from an historical point of view, our author says:—"If we were in possession of those with which St. Damasus adorned his church of Saint Lorenzo in Damaso, and which were extant 400 years afterwards, that is, about 800, we should have an ascertained series of pictures to supply the link which seems wanting in Catholic decorative art between the catacombs and the compositions in mosaic, which, though some may be of the sixth and seventh, are more generally of the ninth and later centuries. Independently, however, of any other interest, the frescoes in our basilica of St. Clement go far to fill up the gap; for in them we have the earliest large wall-paintings of church compositions now left us, certainly in Rome at least; ingenious in their arrangement and replete with piety..... If we agree, from the square nimbus about his head, that Leo IV. introduced in the picture of the Assumption of our Lady, was painted before his death in 855, we can judge in some degree (even without the pictures lost in the interval, and taking no account of the Crucifixion and other earlier frescoes in St. Clement's), by comparison, with the Catholic art of the fourth century, such as the glasses inlaid with gold, and the latest representations in the catacombs, how much has been lost in the lines of drawing, and what progress made in more crowded composition. Again, if we refer the great picture representing the translation of St. Clement's relics, from the Vatican to his own basilica, to the time of Nicholas I., who died in 866, we shall not think, even by this comparison with the catacombs, that Catholic art had miserably perished." This brings us to the end of the introduction, and to the beginning of the section which treats of the life of St. Clement, in some hundred and more pages; but as it is not to our purpose, we refer to it very briefly.

Clement was of imperial blood, and of the Flavian family. The martyr of the same name was his uncle. He was converted by St. Peter at an early age. He is mentioned by St. Paul in his epistle to the Philippians. He succeeded to the Popedom A.D. 92, being the third from St. Peter. He was exiled to the Chersonesus by Trajan, where he worked miracles and converted the Aborigines. The result of this was that "Auphidianus ordered the Pontiff to be thrown into the sea with an anchor fastened to his neck. The sentence was executed in the presence of an immense crowd. The Christians being grieved that they could not recover his relics, were advised by his disciples Cornelius and Phœbus, to have recourse to God by prayer, and humbly implore of Him to indicate the spot where the holy martyr's body lay. As their prayers ascended to heaven, the sea miraculously retired from the shore. They followed the receding waters, and having gone to the distance of about three miles, they found to their astonishment and inexpressible consolation, a marble temple and within it an urn containing the holy Pontiff's body, while near it lay the anchor, the instrument of his martyrdom. Falling on their knees, they returned thanks to God for having recovered so priceless a treasure. For more than two hundred years the sea used to retire on the anniversary of St. Clement's martyrdom," after which time it seems to have returned to its natural habits, for in the ninth century St. Cyril went in search of the relics of the blessed St. Clement, and "taking ship on a calm day, under the guidance of Christ, they took their way, to wit, the aforesaid philosopher, with the bishop, George by name, and the reverend clergy, and some of the people. Sailing then with great devotion and confidence, hymning and praying, they reached the island in which they supposed the holy martyr's body to be. Getting round about it then and searching" they found the holy man and his anchor, and transported them to Rome.

We have now arrived at the section headed "Subterranean Basilica of St. Clement," which has for its frontispiece a plan of the old basilica, with the foundations of the present church shown on it in lighter ink. We must now follow our author more closely.

We quote the commencement of Chapter I. at length, as, although containing nothing absolutely new, it is a clear expression on a subject by no means universally understood:—"The Greek word *βασιλιεη* (basilica) means a royal pall, and in this sense it is used at the end of the 'Recognitions of St. Clement,' where it is stated that Theophilus, the first citizen of Antioch, '*Domus suæ ingentem basilicam ecclesiæ nomine consecravit*,' for the reception of St. Peter's chair. It was a covered building, not like the Forum, an open place surrounded by covered porticoes. The first great basilica was built A.U.C. 568, by Cato the elder (Marcus Portius), whence it was called Portia; the second was called Opimia; the third that of Paulus, built at so great expense, and with such magnificence, that it was called Regia Pauli. Julius Cæsar built, under the direction of Vitruvius, the Basilica Julia, which served not only for the hearing of causes, but also for the audience and reception of foreign ambassadors. It was supported by one hundred marble columns in four rows, and enriched with decorations of gold and precious stones. Pagan Rome contained many other basilicas also, such as the Emilian, the Alpian, the Constantinian, &c. Ecclesiastical writers generally use the word to signify a church of great magnificence, and in that sense it is frequently employed by St. Ambrose, St. Augustine, St. Jerome, Sidonius Apollinaris, and several other writers of the fourth and fifth centuries. Some, with the learned Jesuit Alexander Donati, and Rondinini, assert that the ancient churches were called basilicas from their having been built in the style of the Roman halls; while others maintain that those halls were given to the church for the celebration of Christian rites, as may be collected from that passage in Ausonius, where he tells the Emperor Gratian, 'The basilicas which heretofore were wont to be filled with men of business, are now thronged with votaries praying for your safety.' These words clearly indicate that, at least, some of the Roman basilicas were converted into Christian churches. The design of the basilica was simple and grand: oblong in form, with a nave and two aisles, separated by lines of columns, from which, in many instances, sprang arches to support the walls that sustained the roof. At the extreme end opposite the door was a raised platform for the tribune, and the apse in which it stood was often ornamented with mosaics. The main entrance to the building was through a portico supported by five or seven columns, according to the size of the structure. All these arrangements are still perfect in the modern basilica of St. Clement, the style of which, we presume, was borrowed from the ancient one. Bottari, Agincourt, Raoul Rochette, and Father Marchi have maintained that the style of the Christian basilica was borrowed from the chapels in the catacombs. But these chapels were rather modelled after the plan of the ancient Roman basilica, as it was natural for the Christians to adopt the designs to which they were accustomed."

We next learn that Clement, shortly after his conversion, erected an oratory in his own palace at the foot of the Cœlian-hill; and that it was replaced by a magnificent basilica, probably at the beginning of the fourth century. This latter date is determined by the following facts: Diocletian levelled many churches during his persecution, which commenced in 302, and Constantine repaired and rebuilt these churches on his ascension in 306, or soon after. It is not likely that the oratory of so eminent a saint escaped the attention of either emperor. There is no evidence of its having been built previously to the fourth century, and the style of the architecture indicates that it was not. On the other hand, it cannot have been built much later, for St. Jerome informs us that the church built in Rome keeps the "memory" of St. Clement's name "to this day." The occurrence of this word "memory" leads to an investigation of the technical meaning of the word *memoria* to the layman somewhat tedious. A *memoria* seems to have been a place of worship raised on the site made famous by some saint and martyr.

In Chapter II., our author shows reason to conclude "that both church and clergy were flourishing in 600. Two hundred years after, whatever may have been the cause, the basilica was falling into ruin. Anastasius, the librarian, tells us that Adrian I., who died in 795, restored the roof." He says also, "The title of blessed Clement, which was even about to fall and be laid in ruins, of the third region, he made new. One of the columns of the original basilica is broken, and perhaps the brick piers in which it and several other pillars of the old church are imbedded are Adrian's work."

Two possible causes of the apparently sudden filling-up of the ancient basilica are suggested. "The great earthquake of 896, which shook the old pillars of St. John Lateran, and may have reached this church, and the destruction of this quarter of the city from the Lateran to the Capitol, by Robert Guiscard, who came to Rome in 1084, to rescue the great Monk of Cluni, Gregory VII. . . . . Probably that was the time at which our venerable basilica disappeared." To Father Mullooly, the author of this book, we are indebted for the discovery of the basilica. In his own words, "The basilica disappeared and was forgotten, so that, notwithstanding the industry of Roman archæologists, every record and tradition relating to it was referred to the comparatively modern church built upon its ruins. However, the basilican style was followed in all its details in the latter, which caused it to

be regarded by all archæologists as the most perfect example existing of the early Christian basilica. But a particular study of the topography of this part of the city, as well as a minute inspection of the marbles in the choir, induced the writer of these pages to suspect, so far back as 1848, that the church spoken of by St. Jerome, Pope Leo the Great, Symmachus, and Gregory the Great, could not be that described by Ugoni, Panciroti, Rondinini, Nibby, and others; and, therefore, that the former must be either beneath, or somewhere near the latter. Just as these conjectures were about to be tested, Rome became the theatre of revolution. The contemplated researches were therefore deferred, but not abandoned. In progress of time what had been conjectures ripened into convictions, and, in 1857, the researches were commenced by opening a passage through a chamber containing some remains of ancient walls, and thence through another, quadrangular and vaulted. Here, having made an aperture in the wall, and removed a quantity of rubbish to the depth of 14 ft., we discovered three columns standing erect *in situ*, and some fragments of frescoes." What repose there is in the picture which this simple narration presents to us. We see the Dominican prior walking his round of consolation, and musing as he treads the ground so dear to him, of all that ancient fathers and modern antiquaries have written concerning it; we see him seated in his choir vainly endeavouring to follow the discourse of Father Verydry, while his eye and mind wander to the pavement beneath his feet; we see him with that power of faith which forms so marked a characteristic of the man, directing the works, and telling the number of cartloads removed, "of which," says he, "more than 150,000 cartloads had to be carried up the same way that Maximin made the martyrs, Thraso and Saturninus, carry gravel from the arenaria to build Diocletian's baths, that is, in baskets on the shoulders." The works succeeded admirably under the direction of Fontana; the upper church being supported on brick arches and vaults. Passing over notices of inscriptions (one of which records the restoration of the basilica in 384–398) and a mutilated statue of St. Peter as the "Good Shepherd," we now come to the description of the basilica itself, and with that we will deal in another article.

Rome.

OLD AND NEW METHODS OF ART WORK.

JAPANESE ART.

AMONG the multitude of "activities" which distinguish the "Western," or civilised, portion of the world in these modern days, there is surely not one more remarkable than that of the desire apparent on all hands of the *Western* civilisations, to "convert"—to use a general and descriptive term—the nations of the *Eastern* world. Reform *is* everywhere; but it centres in the West, and spreads on all sides from thence, and all desire to spread it, and to "Westernise" the world! In art matters, which so closely concern us, this is more especially so, and not a little of our never-tiring energy and commercial activity and capital is employed in the sending of our fabrics and "patterns" to those far-off Eastern countries, which are waiting to be thus "civilised"! But there are two sides to all questions. If the East be now borrowing, as far as may be, from us, it is quite certain that we owe not a little—how much it would take some time to tell—to it. Can the two, so opposite in feelings and tendencies, be ever brought together, and so mixed up together, through mutual borrowings, as to make one? Is it, on the other hand, desirable to do this, even if possible?

Some such thoughts as these must need occur to many interested in the art of Japan. This singular phase of art is just now not a little in fashion, and much money is being spent on it for reasons which are not, truth to say, quite obvious. Why should Japanese art be specially entertaining, and to be coveted?—for what can well be further removed from us here than the isolated art productions of so strange a people, so different from ourselves in all ways?

It is but very lately, be it remembered, that anything was known, either of Japan itself or of its exceptional productions; for no treatise even, say the authors of the new book on the "Keramic Art of Japan," which is dedicated emphatically to the Duke of Edinburgh, specially devoted to the subject of Japanese art, has been written by any of the travellers in Japan. Indeed, if all the remarks were collected from the numerous works on the country, and on the manners and customs of its people, which have any bearing on art, they would produce but a very fragmentary and sketchy essay on the subject. The authors add, and it is not a little significant of what is in the future, that so great are the changes which modern "civilisation" and commercial intercourse have so lately made, and are making, every day in Japan, that at a very early date but little will be found of its really *national* art work, or art thoughts; little remaining to enrich our present imperfect knowledge. How true this is none need be assured who have paid any sort of attention to the matter. A few thoughts about Japanese art, therefore, before it disappears, and is lost in "art-manufacture," may be of interest, if not of use.

It is a strange thing to go back in thought to that older state of the world when nations, such as Japan, were each in one complete state of *isolation*. Such state belongs emphatically to the barbaric state of the world. It followed from its savage state, and *is* followed by our present so-called civilised condition of things mundane. To this state in the life of nations belongs China,—to which Japan would almost seem to be a natural province,—and to produce, at first glance, it seems, the same species of art, and to be produced by the same means. But the authors of the new book on Japan tell us that few if any bonds of sympathy exist, and very few outward marks of resemblance are to be observed in their respective works, the differences being so many, and so important, even when the material employed is the same in both cases. Indeed, so great and wide is this difference between the two that we might suppose, they contend, that wide oceans or untravelled wastes had always existed between them, and so separated them. But in spite of all this, there is a sort of likeness and similarity in them that is not a little striking. A right curious subject of inquiry it is, and will one day, we cannot doubt, help to throw light on the very origin and progress of art. It is not necessary that two peoples in their art efforts should *copy* or even *see* each other's art works, to be more or less alike: it is but necessary that they should work in the same vein. Indeed, may it not be affirmed that the art *beginnings*, at least, of all nationalities were the same, or nearly so?—*e.g.*, the well-known *fret* of the antique Greek, of the Japanese, the Chinese, of the Mexican—with a pathless ocean between them and the old world civilisations—might well have been copied from each other; the differences being caused by the special individualities of each producing power, mind, and nationality, the individual peculiarities of each artist workman producing in *detail* further and more subtle distinctions. We might cite in proof of this, which may seem to some an over-refinement, not a few striking instances, did space permit.

It may here be observed that this fine art of the Japanese can be only thoroughly seen and appreciated by an attentive and long-continued examination of the *objects* themselves, whatever they may be, whether textile fabrics, paper, wood, or metal work, or keramic art. Books and illustrations are excellent things in their way, when the objects themselves cannot be seen; but when they can, *they* should be looked at, and certainly by those who need go into the difficult questions of kind and texture of material, tone of colour, individuality of drawing, and subtlety of forms. Some of the finer work in ivory, when coloured and gilt, so drawing, however fine, could possibly adequately represent, so exquisitely fine and minute is the *carving*, and so subtle the colour. Nothing but individuality of handwork, and fineness of touch, and correctness of taste, could produce such work. Machinery of any kind would be here utterly powerless. It evidences, as all such work must, how much is lost to art by the substitution of the machine for the hand in the production of art-work. This may be, and is no doubt, questioned by not a few; but look into this Japanese work,—*i.e.*, into the art-work itself,—into the hand-made objects,—and all doubts will and must be removed in exact proportion to the attention and study given to it. In the very fine work no study even is needed, for the fact is to be perceived at a glance. If the famous fine and fairy-like *muslin* of India is beyond the power of the best machinery, as it is admitted to be, then is this fine Japanese work equally, if not more, so.

Looking at the quaint conventionalism of the costume, and at the general surroundings of the Japanese, we should hardly think of the fact of their strong likings for Nature, and for the representation of natural forms and movements. But so it is. Some of the representations of the forms and movements of animals, birds, and insects especially, can hardly be surpassed in accuracy of deliniation and truth of colour, and even subtlety of expression. And yet with all this truthfulness they are Japanese likenesses. Nowhere most surely in the whole range of things artistic is there to be found a more instructive and convincing proof of the value of national and pure individuality. All is intensely Japanese, and could come from nowhere else. The more one looks at it the more pity does it seem that it should be lost, and "improved" out of the way. Its value surely is in its own inherent and unadulterated strength, and is not to be made better, whatever that may mean, by mixing it up with all kinds of incongruous and inharmonious forms and conceits. In its own inherent and individualised power is its strength, and out of this present strength must its future grow: *i.e.*, if it be not lost altogether in "Western" influences. What the strength of the distant future art-world is to consist in may indeed puzzle the most learned, and the most acute, and the most cunningly prophetic, when all things artistic get well mixed together; but what the strength of the old art-world consisted in there can be no sort of doubt. Japan, in the last generation at least, was the old world in the new.

There is one special consideration connected with this subject of the older phases of art worth note when dealing generally with art nationalities. It is in connexion with books of *travels*. The further we go back, and the more old-fashioned the book of travels is, the more quaint and thoroughly national and individualised do the accounts of "foreign parts" get. Everything is new and strange to the traveller. Everything offers a contrast to that which he left behind him in his distant home. Houses, rooms, furniture, human kind, and the costume it wears, and the ways of men, all are different from what he has always been surrounded by. The old voyager is intent only in pointing out these manifold differences, at wondering at them, and all his literary strength is exhausted in the endeavour to make it evident and plain to the intelligence of his readers. This can hardly be said of the more modern searches into "foreign parts," for their burden mostly is of what and how best impression is being or is to be made on the outer barbarian. In matters Japanese this is specially to be noted. In the most recent books about Japan and the Japanese, we seem to see through them,—great as their merits may be,—the Japanese from our own stand-point, and to look at them through a British glass, somewhat darkly it may be. But with the old voyagers we plunge right into the strange islands themselves, and forget our own ways, and see the odd people and their surroundings and ways of life as though we lived with them, though not of them.

It would be a very curious matter, indeed, to go exhaustively into the full amount of art teaching which this art of the Japanese can teach, and to pick up out of it all that could by us be fairly and usefully utilised. In the first place, it must be borne in mind that the art of the Japanese is, as we have before noted, on the visible decline, and that a knowledge of "Western" ways of doing work, however advantageous that may be in itself, is not in Japan improving the native work, but gradually and certainly destroying it. There seems to be no doubt whatever of this, and, indeed, if we analyse the art process itself which produces art work we must soon see that this must needs be so. Unfortunately, the Japanese are getting into the way of *manufacturing* objects for the European markets, so that caution is needed. But if any one will take up a piece of pure Japanese work, and try to copy it, then will the difficulty,—nay, the impossibility,—of the process become apparent. No matter whether the work be fine or coarse, large or small. The character and individuality and feeling of the work are purely Japanese, and take native talent and feeling to interpret truly. It is rather in the study of such work, and in the looking at it, and may be wondering at the strangeness of it, than in any attempt to reproduce it, or to steal from it, that real artistic good can come. All will agree, the longer they look at it, with us, we are quite sure, that it is a pity that so curious a phase of art should be "improved" out of existence! And for what? Much, very much, more might be here said in reply.

SCULPTURE BY THE GROSS.

PASSING a large new building the other day, not a very great way from the Houses of Parliament, we were conscious of an effort of decoration in progress thereupon, which gave us pause. A series of symmetrically spaced panels on a long elevation had been and were being carved each into a design formed by a couple of specimens of the conventional dolphin, each pair reposing in peaceful companionship in its own panel. The objects of the edifice being, in a sense, aquatic, the device might lay claim to be considered appropriate to the situation; and, at any rate, we are not going at this time of day to strain at a dolphin as a piece of architectural ornament. We have, metaphorically, swallowed in our time many scores of architectural dolphins, and perhaps might be very glad if we never found anything worse disporting itself on a building. The method of representing these respectable conventional fish standing on their heads, with their tails crossing or tied in a knot, has scarcely the charm of novelty, certainly; but that may be said of some other architectural details. But what did strike us in the case alluded to was that this not very original device was being repeated in a score or so of places all in a row, by dint of a distinct and separate operation of carving applied in each situation. And such a proceeding we cannot but think an indefensible waste of human labour.

The principle of repetition is an essential element in architectural decoration in almost every style, and of course we are not saying that the carving of a repeated ornament, such as the modillions of a cornice, along a whole range of building, is a waste of labour. Repetition of that kind is necessary for continuity of effect, and, in fact, it is the repetition that constitutes the decorative effect, in cases where the single feature without the repetition would have no significance. And in larger features, in a line of windows for instance, the best, or at any rate the most dignified, effect is generally produced by symmetrical repetition. But in the case of panelled spaces enclosing ornament which is worked by hand, the fact of the symmetrical shaping and spacing of the enclosing panels is just what allows of the variation of the work contained within them, without detracting from the general effect of symmetry. The demand which the eye makes for repetition is satisfied by the general form and border of the enclosed spaces being made to correspond; the spaces themselves are then at liberty for varied treatment in detail without detracting from the general unity of design. To ignore this opportunity, and to set masons or other workmen to carve the same design over and over again in each separate situation, is to reduce intelligent men to the condition of machines, and to make them laboriously carry out what could be done as well by any of the mechanical means of casting or shaping designs by the score. We do not (to come to our dolphins again for a moment) find fault with the lamp-pillars of the Thames Embankment for repeating a somewhat similar style of design to that we have been mentioning, along the whole length of the river wall; there may be two opinions as to the design, but the fact of its repetition does not offend the judgment, because it is cast-work, and if suitable for one part of the site is equally suitable for all the rest, and its variation would hardly give any advantage to compensate for the labour and expense of a larger number of models. Nor is the moral sense offended by seeing a workman employed in cutting a number of stones to the same mould for a continuous cornice. That is mechanical work, to be carried out with mechanical accuracy, and not demanding what can be called artistic ability or feeling. But when we see work which comes under the class of architectural sculpture, and requires the hand of the art-workman to bring it into form, deliberately repeated by the gross, so to speak, in situations where the same amount of labour and skill might have been turned to the production of as many varied and new designs, we feel that the art-workman is being degraded into an operative machine, and that the degradation of architectural art can hardly be more effectually brought about. This sort of proceeding is not at all uncommon, and its object seems to be to save the architect the trouble of designing twenty things where one can be made to do duty. There is no parallel for this in any fine or noble architectural style of the past; at least, not as regards sculpture. Imagine the Parthenon with the same group laboriously sculptured in all the metopes, in unvaried repetition, and there would be the parallel to what is being done on great buildings in London, on which much money is being laid out. Even in the less intellectual work of the panelling and niche ornament of Mediæval architecture, we constantly find in the best work variation carried out in the most conscientious manner, as if the workman would have been ashamed to go over again mechanically what he had once done, when a little thought would enable him to vary it. Not unfrequently, we venture to say, the modern English stone-carver, if left to himself, would be equally unwilling to resort to this save-trouble method of repetition, and certainly no architect with any feeling for and interest in the art ought to allow him the opportunity of doing so.

No doubt the hurry in which buildings are wanted in the present hurrying age has something to do with, and gives, perhaps, some excuse for the system of carving in the gross, to which we allude. But if sculptured decoration cannot be carried out so as to add to the life of a building, and give scope for something like thought in design and execution—if there is no time for this, it would be far better to acknowledge the fact at once, and to be content with such decorative effect as can be obtained by more mechanical means. Architectural design, however unadorned, which makes no pretence to more than it really achieves, may command respect at any rate, and gain the praise of good taste. But to attempt effect by carving some commonplace design indiscriminately and in a hurry all over a building, is to degrade both the art and the workman.

THE OLD QUESTION.

ARE we to go on for ever copying old styles? is a question often asked, and in reply to which no practical response has as yet been given. Certain axioms have, it is true, been accepted, and by the acceptation and adoption of which a decided step in advance of the system so long prevalent has been effected. It is no longer thought sufficient or desirable that a design should be carried out in any material whatever irrespective of its nature and texture. The artistic form adopted, it is justly held, should be based upon the nature of the material to be used, and not be altogether irrespective of it. It is thought unworthy of the practice of every true lover of art to sanction or encourage the use of shams; the material, whatever it is, should declare itself, and be used so as not to appear like any other, and, when practicable, the more durable material should be employed in place of the more fragile and perishable.

When these opinions had been arrived at, a decided step in advance was made. When the architect resolved to use wood as wood, he, by a natural sequence, concluded to use every other material in a natural and characteristic manner, and in that way was led to produce new designs,—designs in perfect harmony with the style, and yet essentially different from the mass of the old work.

In determining the character which his design is to possess, the first consideration of the architect should be the nature of the materials he will have to deal with, the fitness of the means to the end, the relation between principles and ideas.

In using stone itself, the pointed arch is not an absolutely essential requisite to the carrying out of a Gothic design; a lintel may be used where it is most suitable for a purpose without its being weakened by cutting it into the form of an arch. Panels are more appropriate to a wooden construction than a stone one, and should not be adopted except in rare instances, such as where a thin slab of a richer material is inserted, where such a mode of construction becomes absolutely necessary to produce the desired end.

A pulpit may be constructed either of marble, stone, or wood, and in each case the form and the nature of the detail should be governed by the material; in marble it should be delicate and refined, bolder in stone, and altogether different in wood. A pulpit, being an accessory to the temple of the Everlasting, should, we think, be formed of the most durable materials, and although we have no favour for notions of smug respectability and comfort in such a place, there can be no objection to the feet of the preacher being protected by a wooden floor or thick mat. Stone sedilia again are hardly compatible with our modern ideas of what is requisite for the health of the occupants, and cushions and padding would be quite out of keeping in such a position.

Cast work is generally showy and meretricious, but it may be used properly and with good effect; it is, however, too often made to assume the form of carving which it can never do effectively. Cast-iron, for example, if produced with elaborate enrichment and undercutting, is always blunt and ineffective. Simple flat forms should therefore only be used, but wrought iron may be made to assume the most elaborate and fantastic forms, with sharp, well-defined detail. Plaster, again, is a much-abused material; an abundance of cheap and flashy enrichment can be produced in it, and there is therefore considerable temptation to use it; but it is weak and perishable, especially when put into the form of relief. It is a useful material when used in a flat manner, and in the right place, but where it is used in circumstances where a more durable substance might be reasonably looked for, the effect is disheartening.

Another good result of modern discussion is, that the interior plan is usually made to govern the exterior form, in place of the interior arrangement being made to fit into a previously designed exterior. The interior arrangement being shown on the exterior, greater expression, variety, and individuality is attained, the grouping is more picturesque than formal, and the ornament may be made to enhance and not to encumber the expression; every feature may have its use, and not be placed in a certain position merely because it is thought proper to do so: convenience and elegance may go hand-in-hand.

A decided improvement in our street architecture has been effected by the introduction of plate glass. Like many good things, it has been abused, especially in the case of shop-fronts; but to revert to the use of leaden casements with the smallest possible panes of glass, is a practice so absurd as to carry its own condemnation with it, and to encourage rather than to discourage the extravagant use of the largest sheets.

The relation between the site and the form, character, and design of a building is a grave consideration. It is generally a mistake to bring material from a distance; that which is common to a district is usually most in harmony with the surroundings. A stone house in the neighbourhood of Hambledon, Hazemere, or Witley, seems as much out of place as a timber-framed mansion would be on the shores of Loch Rannoch, or the wilds of Badenoch. A flimsily got-up thing, coated with cement, is a blot on the face of the least attractive spot in this world of ours.

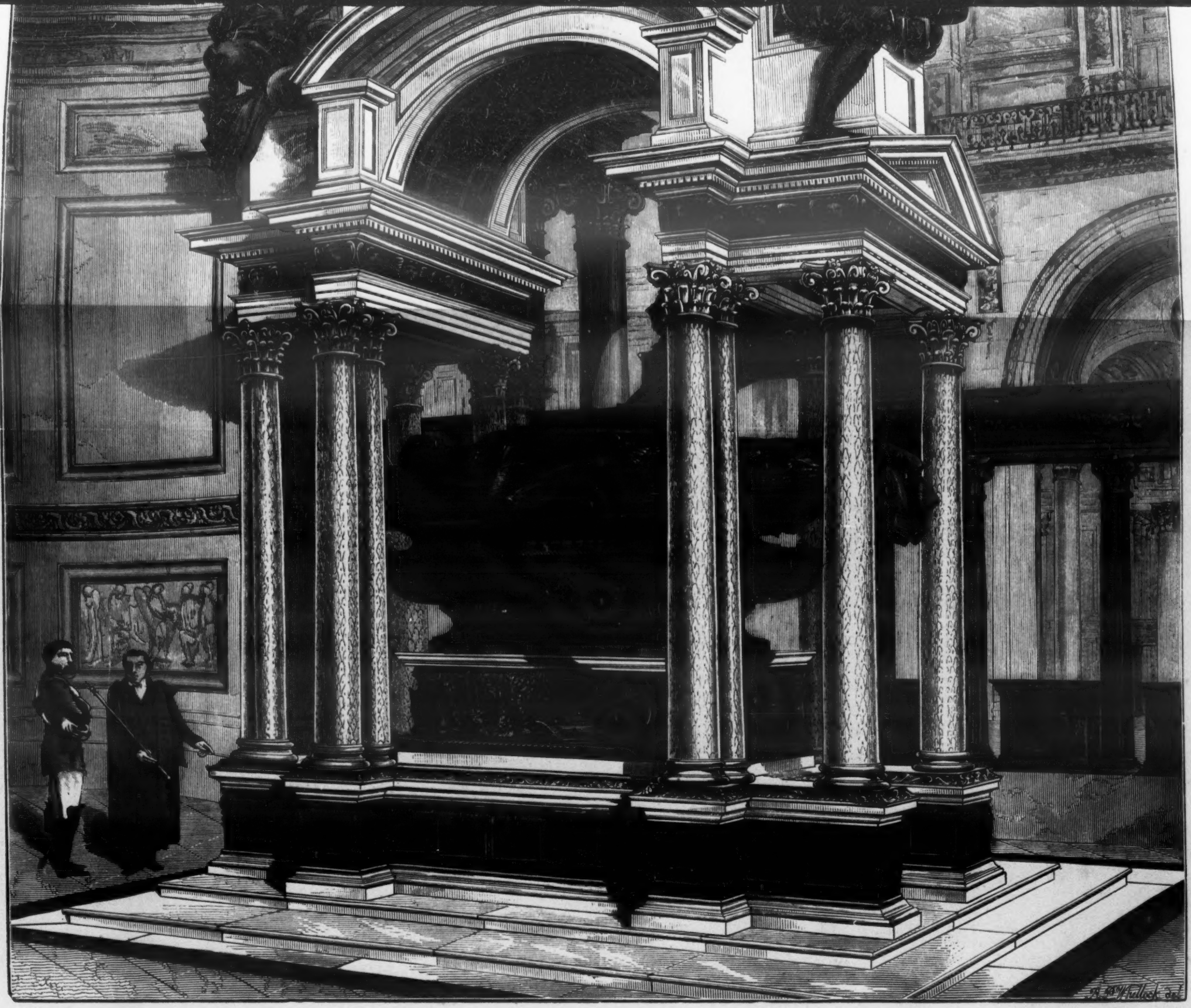
The art of the past was, as every student is aware, the result, not simply of admiring and copying what had been done before, but of studying the requirements, necessities, and feelings of the period, by effecting gradual improvements as the call for them became apparent. But it almost seems as if no system of art action can be perpetuated in these modern days. In the struggle for existence men do not now look so much to the future as to the present, sufficient for the day if commissions are obtained and a per-centage pocketed. Strive to be conspicuous whatever the result,—the individual, and not the art, is what is most worthy of consideration!

Classicalism, Mediævalism, or even "Free Classicalism" is not what is wanted, but a style suitable to modern ideas and requirements.

DWELLINGS OF WORKPEOPLE IN CONSTANTINOPLE.

THE dwelling-places occupied by the industrial classes are invariably of two descriptions,—small, self-contained houses, which are either occupied by a family, or sublet to two or three; and large "Odas" or "Khans" inclosures containing a number of rooms each occupied by a family, or by a number of unmarried men. The houses, or odas, in one quarter of the city are, so far as can be seen, similar to those of another; but the quarter in which their dwellings are situated must make a difference in the relative health and comfort of different classes of the working men. Some districts frequented by them in the heart of Stamboul, or in the ravines behind Pera, are ill-drained and inaccessible; whilst others on the sloping ridges of the Bosphorus are within easy reach, both of the open country and of the sea. A separate house can scarcely be obtained at a lower rate than 25s. a month; an apartment of two rooms can be found at 16s. 8d. a month.

The common industrial classes are usually lodged



THE WELLINGTON MONUMENT, ST. PAUL'S CATHEDRAL.—The Late Mr. Stevens, Sculptor.

at the "odas," a description of which is not without interest. In one visited there were 150 lodgers. In a room, 12 ft. by 15 ft. and 12 ft. in height, lodged five men. The rent of the room was 10s. a month. It contained scarcely anything beyond bedding, quilts, and three small boxes. Within the "oda" was a coffee-house, where pipes, coffee, and raki were to be found, and to which a barber was attached. There was likewise a shop for the sale of cabbages, onions, and lemons, as well as bread, candles, and charcoal. The entire building was of wood. In another, the "oda" contains the means of lodging 350 persons. The master was a Turk. Of thirty-six rooms twenty-nine were tenanted by Armenians and seven by Mussulmans. The rooms, all of wood, were on two stories. In the court-yard vines were growing. In the centre was a large tank. The oda contained a coffee-house and a kitchen. The lodgers had one meal a day, and that in the evening. The food preparing was soup, with pieces of meat in it, stuffed cabbage-leaves, and beans.

Odas or caravanserais more or less similar to those mentioned serve for the accommodation of the very large numbers of the industrial classes that are attracted to Constantinople from a distance. They generally leave their families behind them in the hope of realising something more than the means of returning.

The artisans born in Stamboul are for the most part married, and occupy a portion of a small house. Until their marriage, that is during the period of their apprenticeship, they live with their parents. The nature of their engagements with their employers depends on the nature of their industry. Shoemakers and saddlers, for instance, are engaged by the piece; jewellers and tailors by the day or week.

The industrial classes are formed into "esnafs" or guilds, an institution which the Turks are said to have borrowed from the Arabian caliphs. Certain guilds are recruited from amongst men of one race only. Thus jewellers, watchmakers, tailors, furriers, and men engaged in the working of silk are all Christians; whilst saddlers, seal engravers, and others are Moslems. The property of each guild is made "Vakouf;" that is, endowed, so that it is secure from arbitrary seizure on the part of the authorities. An artisan serves an apprenticeship of from three to five years, and in some cases of seven years. He is then a "kalfa," or companion, and receives wages from an "Oosta," or master of a room.

The work of the native (including in this term the Greek Armenian and all those properly belonging to the Levant) is, as a rule, rude and unfinished. He takes no pride in his work. His pride consists rather in doing work as his forefathers have done it, roughly, rudely, and incompletely; and what he is satisfied in producing his customers are satisfied to obtain. The man who hammers copper, as his forefathers hammered it, into stereotyped forms is content to do this and no more. His guild approves, the public is content, he gains a livelihood, and his children will copy him as he has copied his ancestors.

BUILDING ON THE EFFRA HALL ESTATE, BRIXTON.

AMONGST the numerous historical mansions and grounds, in almost every direction around the metropolis, which are constantly in succession being broken up and applied to general building purposes, the Effra Hall estate at Brixton, must now be included. Effra Hall and its grounds have long been well known as one of the most picturesque suburban spots about South London. The park or grounds within which the hall, now demolished, was situated, is upwards of thirty acres in extent, bounded on the west by Effra-road from Brixton Church to the Dulwich-road, and stretching eastward to the Atlantic-road in immediate proximity to the Herne-hill and Victoria section of the London, Chatham, and Dover Railway. The whole of this estate has been laid out in streets for building purposes, and already upwards of 200 houses have been erected, several of which are occupied, whilst a large additional number are at present in progress. Three streets, each 50 ft. in width, run parallel with each other, in an eastward direction, from the Effra-road frontage to the Atlantic-road boundary, whilst other streets running north and south, intersect the first-named thoroughfares at right angles.

There will be altogether from 800 to 1,000 houses on the estate, which has been laid out by Messrs. Hammack & Lambert, surveyors, of Bishopsgate.

OPENING OF A NEW DOCK AT RUNCORN.

ON the 22nd inst. a new dock, which for some time past has been in course of construction, to meet the requirements of the growing trade of the port of Runcorn, was formally opened, and the facilities which it will afford for the rapid discharging and loading of vessels will be a great boon to the shippers, merchants, and others interested in the trade of the port.

The dock extension and machinery have been constructed upon plans laid down by the Bridgewater Navigation Company's general manager and engineer, Mr. E. Leader Williams, jun., who has arranged the increased accommodation in such a manner as to meet, in every possible way, the particular necessities of the trade of Runcorn. The area of the new dock is 2½ acres, its length being 600 ft. and its width 150 ft., making the total area 12½ acres, which will be increased to 17½ acres on the completion of the conversion of the Weston Canal into another dock.

The contractors for the dock and extensions are Messrs. Dransfield & Holme, of Liverpool, and we understand that they have executed their task to the entire satisfaction of the Bridgewater Navigation Company. Messrs. Tannett, Walker, & Co., of Leeds, are erecting the hydraulic machinery and appliances, which are now nearly completed. Mr. F. Griffiths, C.E., has acted as the local resident engineer.

THE WELLINGTON MONUMENT, ST. PAUL'S CATHEDRAL.

TWENTY-THREE years nearly have elapsed since the "Iron Duke" (as he is sometimes styled) died,—a great man of whom the nation may well be proud. To speak of the hero of a hundred fights in his military aspect would be to enter upon a subject far beyond the limits of this paper: let it suffice that he went on from success to success, until the power of his opponent was broken, and his forces were scattered at Waterloo.

In his private character he well deserves the esteem of his countryman,—a man of self-denial, self-discipline, and integrity. A grateful nation has sought to honour his memory with a noble monument erected in the Metropolitan Cathedral of St. Paul's.

After all that has been said and done, and after all the time, too, that has elapsed, it is a happy circumstance that the carrying out of such a work should have fallen into the hands of Mr. Stevens, a rare man of his kind, although, like many great men, he had his weaknesses. It is also a happy circumstance that he should have lived to so far complete it, as that all the models for the figures are finished, and the whole of the marble or architectural framework is already executed, and in its place in the cathedral.

The view which we publish represents the work complete, as Mr. Stevens had designed it, and which, when finished, will measure in its extreme dimensions on plan (*i.e.*, taken at the die of the podium) 13 ft. 6 in. in length by 8 ft. 8 in. in breadth, and about 27 ft. in height. The place in which it stands was formerly the Consistory. It is at the south-west end of the nave, adjacent to the clock-tower. The compartment is oblong in plan, having apsidal ends, and measures 55 ft. long by 26 ft. broad, and 43 ft. in height to the vaulting. This ceiling or vaulting is handsome of its kind. There are four octagonal panels having vacant spaces for mosaic or fresco pictures, together with eight spandrel panels, which are sculptured in foliage and flowers out of the solid Portland stone of which it is composed. This court or chamber is lighted with a large window some 22 ft. high by 9 ft. 6 in. broad. Our readers will, for the most part, recollect that the court is divided off from the rest of the church by an oak screen, the work of Wren.

The position is a very undesirable one, but with that we are not now dealing.

The drawing made for us by Mr. Whellock, which we have engraved, gives a very good idea of the monument.

It will be noticed that it is divided into four stages, viz., the Podium, the Order, the Canopy, and the Attic. The podium is raised on two marble steps, and consists of a marble plinth and capping, with a bronze die. This die is ornamented with a series of forty-eight tablets, hung round with cords of bronze, bearing the names of the principal engagements in which the Duke sustained the honour of his country.

On the centre of the podium is placed a low pedestal, with military arms grouped around it. Here we see the helm, the cannon, the bayonet, the legionary "eagle" of his great opponent, coats of chain mail, and various shields.

This pedestal supports the sarcophagus, which is of antique form, very richly ornamented in low relief. Following the ancient custom, an effigy of the deceased, recumbent on a bier, is placed upon the sarcophagus. This is considered by all who have seen it to be a very excellent portrait of the general. Here he lies "with his martial cloak around him," and his orders upon his breast, while the ducal coronet, no longer needed for his brow, rests on the folded end of the bier beside it. At each angle around the sarcophagus, in groups of three, stand the columns, which are of the Corinthian order. The shafts, monolithic, are enriched with a diaper of oak-leaves, in place of the usual flutes. The frieze of bronze is adorned with a series of cherubs' heads modelled with fine feeling, and the cornice is very beautifully profiled.

The canopy consists of an arch thrown across from the east to the west groups of columns.

The semicircular soffit, which is of bronze, is panelled very richly with alternate cruciform and square spaces ornamented with heraldic badges and cherubs' heads. At each side is placed a colossal group in bronze. That on the east represents Valour crushing Cowardice, while that on the west typifies Truth tearing out the tongue of Fraud. These groups impinge upon the attic, thus connecting those parts of the composition.

The attic consists of a die, with very original and rich baluster columns at the corner; the panels contain escutcheons with the armorial bearings of the late Duke in bronze; and the whole is surmounted with a bold cornice, which, with all parts not otherwise described, is of the purest Carrara or white marble.

As we stated at the time of the lamented death of the sculptor,* the work is so far finished that it can be completed without any interference with his intentions, and we are informed that his friend, Mr. L. W. Collmann, who has the contract with H.M. Government, is pressing it on, and is having the assistance of one of Mr. Stevens's pupils in any matters of subordinate detail which may arise.

The bronze parts of the design have been executed for Mr. Collmann by Messrs. Henry Young & Co., of the Eccleston Foundry, Pimlico, and they have spared no expense to do it in a manner worthy of so important an occasion.

We may add that the construction of this stately monument is of a very solid character. Moreover, Mr. Penrose, the surveyor to the cathedral, who has from the commencement taken the liveliest interest in this great national work, both from his friendship for Mr. Stevens, and his own high-art instincts, has devised a substantial auxiliary to the foundation, forming a wrought-iron framework braced together and imbedded in cement concrete, and which underlies the whole of the monument, thus spreading the bearing, and equalising the pressure over the vaulting of the crypt.

Although Mr. Stevens has left a model of the equestrian figure intended by him to surmount the whole, the erection of this is not included in the present arrangement.

BALA WORKHOUSE.

THE Guardians of the Bala Union have decided to erect a new workhouse at Bala, from the plans of Mr. W. H. Spaull, architect, Oswestry, and for that purpose have entered into a contract amounting to 2,250*l.* with Messrs. Robert Roberts, mason, and Robert Roberts, joiner, of Bala.

Houses Unfit for Habitation. — John Morgan, of Landore, was summoned by the officers of the Urban Sanitary Authority for permitting the occupation of two houses in Hamilton-street, Landore, while in a state unfit for human habitation. Mr. Ebenezer Davis, Medical Officer of Health, and Mr. McAdams, Inspector of Nuisances, attended to prove the case. The walls were damp, and there was no through ventilation. These houses had been built in the gardens of other houses, and without the cognizance or sanction of the Local Board. The only entrance to these newer houses was through other houses. The height of the ceiling was only about 6 ft. The bench made an order to shut up the houses until they had been altered to the satisfaction of the Local Board of Health.

* See p. 405, *ante*.

THE WELLINGTON MONUMENT, ST. PAUL'S CATHEDRAL.——The Late Mr. Stevens, Sculptor.

A LYRIC ON DRAINS.

[*Persons:* The Husband and the Wife, with Children.]

H.—What smell is here? What dirt about the house?
W.—No dirt, an 't please you, that I can get away.
The drains! the drains! 'tis they that smell. How oft
I have reminded you of this, and yet not done.
Get them alter'd, pray you, and turn your wrath on them and not on me.
Time was when you and I could live together,—you in peace;
But since we 're in this place you 're alter'd, man.
Peace! What peace for me? One dead, one ill, one sick,
And 't will be so until you see about the drains.
Why, you, yourself, are far from well, I know; and as for me,—
Well, ne'er mind, I have to bear it.
But pray you see about the drains. Go to the inspector;
He 'll give notice and have them all put right.
H.—I have been. I only waited t' hear what you would say.
W.—What said he, then?
H.—He said he 'd see about it; and so he 's said before;
'T is not the first time I have told him on 't.
He does naught.
W.—He does naught, else we should h' had water before now.
I do declare I cannot stand this water-fetching;
Fetch, fetch, fetch, one 's everlasting fetching water,
'Stead of having time to tidy up one's house,
And make it as it should be.
H.—'Tis but a hundred yards; how near wouldst t' like to have it?
W.—You have it not to carry, else you'd know
It's twice as far, and more.
H.—Why dost t' not send Eliza for 't? She's twelve years old;
And I do oft see children carry water.
W.—Thou mayst; but thou shalt never see
Our children spoilt in that way.
Some do carry 't on their heads, I know,—
A quarter of a hundredweight.
H.—Then, how dost t' fetch the water?
W.—I fetch it thus, if thou must know:
I "fetch" three days a week, and as for t' rest,
We save in tubs.
H.—I know those other days; the water's nasty.
W.—Then, why not get some better? Thou 'rt a man.
Surely water cannot be so precious
But we could ha' some nearer home, and then
Thou 'd see a difference.
H.—Nor thou nor I will ever move the Board
To get us water. The Board! Who are they?
They 're they who have some of their own,
And care not we should have or none. (They pay, thou know'st, the greater part of the expense,
So why should they help pay for thee and me and t' childer?)
W.—I know not of your Boards, or who they are;
I know we cannot go on as we are,
With stinking drains and dirty floors,
And water, none but that we carry.
H.—Has t' landlord been for t' rent this week?
W.—Ay, landlord if he be,—but he 's no landlord;
He 's but the agent of the landlord.
I've asked him many a time about the drains,
And mending th' window and the roof;
But what 's the use? He has no power;
All he can say 's that he will see about it.
He 's afraid to lose his job of agency,
Or be impertinent, or vex his master.
H.—Like th' Inspector, perhaps.
W.—He seems a different sort of man, th' Inspector,
And we may do him wrong. I do not know.
But why should he care? He 's well paid
To see to such as we. Then why do naught?
H.—I thought thou said he 'd been complaining
O' th' pigstye and o' th' yard.
W.—Ay, that 's all he does.
But as to getting water, what 's he done?
Why does he let the smell come into th' house
From those abominable drains?
Let 's leave the house. You give notice.
H.—We cannot go. Besides, 't would be no use.
No water anywhere within
A compass of two miles or so.
Child.—Oh, mother!
H.—What ails him?
W.—He's ill, as he has been before;
The same as Johnny was, poor lad! Typhoid fever.
Thou 's had 't thyself, and ought to know;
But thou 'rt strong, and bearest it.
Not the poor child!—how should he, being child?
That other older child thou fret'st about
Was kill'd outright,—and so will this one be
Unless thou see about the drains.
H.—Damn the drains, and those who made them,
Thou 'rt always laying th' fault on me.
How should I have known, when we came here,
The drains were wrong? How should I?
Enough. There is no peace at home. I'll go elsewhere.
W.—Thou must not; thou 'lt begin to drink,
And make things worse than they are now.
Besides, it rains; hark thou!
H.—Damn the house. I 'm ill, myself.
W.—Thou art, and I have seen it all the day, and thought thou would be so.
The smell is always worse before the rain, and I can tell
As well as any weather-glass when 't 's going to rain;
But I do think 'tis worst of all when th' rain comes down. How 's that?
H.—How 's what?
W.—Thou 'st Johnny in thy heart, I see.
H.—Ay. This, then, 's how it is; and thou canst tell th' Inspector so.
Afore the rain the air is light, and those imprison'd devils which
Till now have been kept down, expand, arise, flow out amain,
From all the gulleys and the traps, and seize upon
The vitals of our children and ourselves. Wouldst t' shake them off?
I do so. E'en thou mayst; but th' children cannot.
Do's t' think I would not thrust my arm 'tween harm and them
If I could do so? Thou know'st I would, and yet,—
W.—Ah! me. That e'er we left the house we loved so well,
For this vile place! What 's higher wages done for us?
Thank God, thou dost not drink away thy brains, and if we could
But live in decent health, all this might yet be well.
But what 's the use of working hard to pay for funerals,
For doctor's stuff, and such like? For th' doctor's hardly ever out o' th' house.
But, stay, thou hast not told thy tale of how it is
That when the rain comes down the smell is worse than ever.
H.—'Tis worse because the air is forced out by the water;
That air which, once as pure as thou art, 's become defiled
By contact with the noxious matter of the drains.
W.—I would th' Inspector heard you.
Inspector.—Good day. I see you've sickness in the house. What is it?
Have you had the doctor to the child?
What says he? What is the disease?
Why speak you not?
H.—I thought I had done that already.
Did I not tell you 'bout the drains?
I.—You did. You should have done 't again.
H.—The trouble——
I.—Never mind the trouble, to either you or me.
You must have patience. We've a deal to do;
And you must help to do it, for, unless you do,
'Twill long remain undone.
Why have you not, ere this, been to the landlord? Whose house is this?
W.—It belongs to Mr. So-and-So, I do suppose,
But he ne'er comes near us;
Old Stickfast gathers t' rents.
H.—I once did tell him all our grievances, civ'lly,
Thinking he'd do what was required of him; and I
Not o'er but under-stated th' circumstances.
This is what he said,—not th' landlord, but his agent:—
"I'll lay out not another penny: did I not,
To please you, have the house done up but lately?
It cost ten pounds. We shall have to raise the rent."
W.—No ten pounds. Ten shillings would be nearer truth.
Why, what did they? I'll tell you.
They used a barrowful of bricks, and stay'd two days,—
One man, one boy,—and that was all.
Inside the house did absolutely nothing;
But, certainly, they painted th' outside woodwork.
Ten pounds!
H.—I only told you what the agent said.
I.—Well, never mind. Here come the workmen.
Foreman of Workmen.—What is it, master, that we're to do?
I.—I'll show you.

H.—Mary, thou'rt better than thou used to be,
And so am I; and so 're we all, I think.
This ventilation of the drains, done ten years since,
Has made the house another house to us.
W.—It has. But I do think the water has
Done more than it. Look now! Why
Ten years since we'd none worth naming.
Look now! inside and out my house is clean.
While I—I work not half so hard
'S I used to do, at that. More time
To make and mend, which is to save
Our money for a rainy day.

"SUBORDINATE TO THE ARCHITECTURE."

SIR,—In pursuance of a natural supposition, I beg to record an idea or two relative to the engrossing investigation as to what ties exist between painting, sculpture, and architecture. They are three sisters, like the Graces, so far as unity of purpose is concerned, for they all evince and often denote a wishful desire to please. They can hardly be ever said to live apart, but one sister may become dominant through the false modesty or effrontery of the others, or from similar designs of her own. The subordinate art in any work where all these three beautiful sisters appear is often quite visible to a tutored eye. But there's the rub. In what does a tutored eye consist? Most will say in the power of perceiving a strict adherence to conventional custom, and rightly so, for such a custom is merely an easy and necessary form of lawful deception, known only to the initiated. To copy nature exactly is impossible, therefore attempts to imitate fail because even the uneducated would discern the feebleness of the artist in not being able to create anything that did not bear the impress of ideality. What necessarily follows is of course conventionality, and the practice is maintained by the acquiescence of those who can and of those who cannot decipher beauty. Painting is undoubtedly more true to nature than the other arts, because colour is a vehicle of expression and in some clever instances, can almost confound reality with unreality. Sculpture often fails because of the absurdity of its site. Heads, forming dripstone terminations, though representing contortions and other possible faces, remind one too much of the uses to which Temple Bar was at one time put. A horse or a lion on the top of a house, and a general or admiral on the top of a column, or a benevolent gentleman sitting in the open air without a hat, all make the thoughtful mind reflect that works of art should not represent idiosyncrasies. It is obvious, nevertheless, that though architecture is more or less mixed up with such misplaced statuary, it always adorns both it and painting, but it is not necessary to their adornment, for a cartoon or a Venus would exhibit every meritorious quality under a tent as well as under the roof of a most imposing structure. But architecture demands her sisters' aid, and never fails to obtain it, though oftentimes ungraciously, in contemptible and miserly quantities. Family jars are not unknown where rival beauties live, and the animus of one sister often instigates an effort to eclipse the beauty of another. In the present day, during the ferment occasioned by the apparition of Queen Anne's shadow on the veneer of some buildings, advantage might accrue from scrutinising two noble works, viz., Waltham Cross, and the Albert Memorial. I conclude that in both cases architecture is the subordinate art, forming merely an elegant mounting to a precious gem in the one case, and in the other the same with the drawback of the richness of the surroundings, causing the observer to forget the "head and front" of the stately monument. With public and other buildings of a different character, however, architecture can-

not be subordinate, because their requirements are definite, and dimensions must be adhered to. Hence an architect of genius has a basis to found his proportions upon, and determines without wavering the place and space respectively for the ornate productions of the sculptor and painter. It results, I think, that having, with masterly skill, arranged for decorating construction, and having comprehensively indicated in detail to the other artists what he requires in the way of decoration, the architect really fundamentally designs edifices in their totality, and consequently, owing to his mind and conceptions generating and guiding the work, the sister arts are subordinate to architecture when rightly conjoined to it. ZAX.

SIR,—As every one who advances any special doctrine is regarded as the champion of that doctrine, I ought to have written with more circumspection and precision. The three positions which my letter of the 17th was designed to uphold may be thus stated:—

1. That painting, sculpture, and architecture are but three aspects of one art,—are but special applications of the selfsame general principles.

2. That these principles are the principles of the human nature; all art the reconcilement of nature to the humanity.

3. That he who completely understands the æsthetic principles of human nature, and works under their guidance, is the great master of the plastic arts.

Whether the analogies which I drew in my letter of the 17th between architecture and the body, and painting and sculpture as the brain, are just,—or *illogical*, as "T. L. D." maintains,—will be proven as we proceed.

Certainly no better exemplar of the correctness of my view could have been adduced than that of the Parthenon; for in this temple we have indisputable evidence that the architect had to conform his building, *ab initio*, to the conditions that it should contain a colossal statue of Minerva, the sculptures of Phidias in the pediments, frieze, &c.; and as the sculpture, and, doubtless, also the painting, were the arts which could alone give the most complete exposition of the idea or purpose to which the building was to be adapted, I think there is nothing inconsistent or *illogical* in comparing these to the brain; and the architectural carcass, the building itself, which was predestined to contain them, to the body. There cannot be the slightest doubt that the consideration of painting and sculpture did dominate in the arts of the age of Pericles, and so strongly, that to this day Phidias stands out as the master mind. Surely "T. L. D." cannot for a moment cling to the notion, that that statue of Minerva, and that the "Elgin" marbles were mere after-thoughts, "finishing decorations," instead of primary considerations, to which all other matters were subordinated. It is in this respect, I maintain, that ancient, and modern art proceeding, essentially differs. The prices which were given for pictures and statues in the Classic times show very clearly that painters and sculptors received a far higher consideration than at any time since the revival of art, even than in the fifteenth century; and till this state of things is somewhat more nearly approached than at present, architects, as a rule, must remain architects, instead of becoming artists. That this is felt by many in the profession is demonstrated by the earnest discussion which was some time since carried on in the pages of this journal respecting the existing urgent need for enlarging the education of the architect, and in which the study of the human figure was imperatively insisted on.

Whether Michelangelo would have been a better painter if he had not also been an architect, sculptor, engineer, &c., it is, perhaps, idle to discuss; for his painting, sculpture, and architecture, surpass the best efforts of those cobblers who, in the present day, stick to their lasts. The injunction, "stick to your last," was meant for cobblers, and cobblers only, not for genius. Seeing, then, that the great artists of the fifteenth century were not cobblers who should have stuck to their lasts, but men of large general powers, possessing various accomplishments, would it not be better if our stock of "exemplary cobblers" were reduced, and if so many would not stick immovably to their lasts? There was one great worker of the fifteenth century who was not a cobbler, and who, therefore, could not stick to a last,—Raffaelle, whom "T. L. D." acknowledges was a good architect as well as painter, and, in so doing, gives the *quietus* to his own precepts.

The original conception of some edifices, as "T. L. D." justly remarks, does not include the consideration of painting and sculpture; but this is only saying that the purposes for which they are destined do not require painting and sculpture for their exposition. They must, nevertheless, be conformed to some human purpose, and, in such cases, the master of greater things would show himself more than equal to the less.

As for technicalities in construction, in carpentry, masonry, &c., why, if an artist of the calibre we are alluding to should have any momentary difficulty in such matters, he could easily take the counsel of either masons, carpenters, or bricklayers, as men sometimes do who are neither artists nor architects. W. C. T.

THE FATHER OF THE DISTRICT SURVEYORS.

SIR,—I have read with much interest the remarks in your issue of the 10th inst., under the above heading. As a ratepayer, I think I may not unnaturally feel regret at the want of consideration with which the tried servants of the Metropolitan Board of Works are treated by our representatives of that Board. I have no intention, however, of dwelling on this, nor have I the intention of alluding to Mr. Henry Baker beyond saying that in common with all who have the privilege of his acquaintance, I hope that he may continue to add to the fifty years during which he has already held the district surveyorship of St. Pancras, and that he will for some time continue to enjoy the proud title of "Father of the District Surveyors."

I may, however, state generally that an officer of the Civil Service, retiring after forty years' service, would be entitled to two-thirds of his emoluments at the time of retirement; and so, on somewhat similar scales, would any officer of the military, diplomatic, or consular service; whilst banks, merchants, and others all allow retiring pensions to their deserving officers.

I believe there is held to be no legal authority to charge the rates with a pension to a district surveyor, but I am by no means satisfied that, if the Metropolitan Board were to proceed under the 29th Vict., cap. 31, sec. 4, and grant an allowance, they could not readily provide for its payment, if such an arrangement as the following were carried out:—

The Metropolitan Board in appointing a new district surveyor can impose what conditions they like. Let them make the new appointment on the condition that the whole of the fees shall be paid into their hands. Let them pay the newly-appointed surveyor a fair salary according to the size of his district, and carry the balance to a fund to be called in their books the "District Surveyors' Superannuation Fund." Upon that fund let them charge the amount of the superannuation allowance granted under 29 Vict., c. 31, s. 4. This mode of procedure seems at first sight somewhat cumbrous, but is rendered necessary by the absence from that statute of any provision to meet the charge for a district surveyor's superannuation allowance.

There can be no doubt that an offer of a half of the present emoluments, with a promise to increase to the full amount after the death of the pensioner, would attract the same number of skilled professional gentlemen as are at present induced to offer themselves on each vacancy, whilst an encouragement would be held out for the retirement of the veterans.

Such an arrangement as that here sketched seems to me eminently calculated to promote the interest of the ratepayers, and I cannot but think that the Metropolitan Board of Works, with a due regard to the welfare of their constituents, and in justice to their officers, might well refer to a committee the consideration of this question. RATEPAYER.

Oxford Drainage Scheme.—The Oxford Local Board lately accepted Mr. Acock's tender for the execution of Contract No. 5, which comprises the western and north-western intercepting sewers. Mr. Acock's tender amounts to 26,000*l.*, exclusive of New Hinckesey, the drainage of which is dependent upon the sanction of Parliament being given to the provisional order for incorporating that district with the district of the Local Board. The measure, however, is now before Parliament, and will probably become law during the present session. This contract will complete the whole of the interior drainage of the city.

RESTORATION OF ST. MARTIN'S, BIRMINGHAM.

ON Tuesday, the 20th inst., the Parish Church of Birmingham was reopened, after being entirely rebuilt with the exception of the tower and spire. The church now consists of nave, aisles, transepts, chancels, with chancel aisles; clergymen's vestry and choir vestry. The length from east to west measures over 155 ft. inside; and the width, including the nave and north and south aisles, is 67 ft., of which 25 ft. are occupied by the nave. The highest point in the church is the chancel arch, which reaches an altitude of 60 ft., and the transepts measure, from north to south, 104 ft. The massive roof of the nave is embellished with carved angles and rich tracery, and has a very imposing effect. The chancel roof consists of massive oak ribs artistically carved, springing from a beautifully-sculptured cornice. The entire roof is left without any staining or varnishing, and adds to the generally good appearance of the building. The masonry in the interior is all worked in Codsall stone, which, while imparting a warm tone, has in no way a gaudy effect. There are two circular staircases in the chancel communicating with the roofs. Under traceried arches between the chancel and the chancel aisles are placed the old monuments of knights and ecclesiastics. The floor under the pews is laid with wooden blocks on concrete foundation. There are three entrances to the church, viz., by the large south porch, a west door, and an entrance under the tower. The latter opens into the body of the church by lofty arches. The portion underneath the tower is formed into a baptistery, and at some future date iron grilles will separate it from the body of the church. It is pleasant to note that some very interesting remains of the old church will find an abode in the new structure just consecrated. The interior of the base of the tower is preserved intact; the old mural tablets are still left to link us with departed generations, and the walls exhibit many fragments of ancient stonework. The greater part of the bricks and material of old St. Martin's has been utilised in the walls of the new building, and the oak rafters were discovered to be so sound that they have been used up in the roof of the chancel and the choir stalls. The chancel stalls are carved in wood, and the floor is laid with tiles with white marble margins.

The structure has been carried out by Messrs. Davies, Bros., under the supervision of Mr. J. A. Chatwin, architect, Birmingham, and almost the whole of the work, including the building, has been done by Birmingham firms. Messrs. Jones & Willis have supplied the brass eagle lectern, the altar-cover, which is very elaborately embroidered on silk velvet, besides the cushions, hassocks, and other fittings; Messrs. Hardman have executed the stained glass window for the east end. The pulpit and font (both of which are richly carved) are the work of Mr. J. Roddis. The carving generally has been executed by Messrs. Farmer & Brindley, of London. The total cost is stated to be about £26,000.

MANCHESTER AND SALFORD BUILDING REGULATIONS.

AN ordinary meeting of the members of the Manchester Scientific and Mechanical Society was held on the 23rd inst., at 88, Mosley-street, Mr. C. S. Allott in the chair. Mr. Grimes, who introduced the subject of the Manchester and Salford Building Regulations, said that with respect to Manchester especially, it might be said there existed a want of building regulations, for he had never in all his experience in any large town seen so few building regulations. With regard to the actual construction of any building, the corporation appeared to exercise very little authority, and certainly the bye-laws with regard to materials, and the forms in which they were to be worked, were very meagre. The speaker then proceeded to allude to concrete foundations, and in a criticism on the ordinary mode of building dwelling-houses, he proposed that every plot of land to be built upon should be inspected by an officer of the corporation, who should certify what the foundation should be. He also objected to the regulation respecting drains, and he expressed the opinion that he did not think that oval pipes should be insisted upon in small sections. With respect to the timbers used in the construction of dwelling-houses, &c., he thought

that some supervision was necessary to render them more suitable for each individual building. In speaking of the quantity of joists and spars which were used by some builders, Mr. Grimes said he was happy to say that many architects were adopting wrought iron for girders, instead of cast iron. Still he should like to see shop-fronts covered over with an arch. In conclusion he said he should recommend the desirableness of calling the attention of the local authorities to the bye-laws of the Metropolitan Board of Works. Those bye-laws had been in operation for some time, and he had not heard of any complaint against them in London. Mr. Jerram and Mr. Hildebrandt afterwards addressed the meeting, and a resolution was passed, appointing a committee to report on the advisableness of promoting an alteration in the extising bye-laws of Manchester and district.

AN ORPHANS' HOME IN SOUTHWARK.

THE foundation-stone of the north wing of the Orphans' Home, in West-square, Southwark, was laid on the 22nd inst., by the Duchess of Sutherland, under attendant circumstances of a very favourable character.

A statement was read by Mr. Roger Smith, the honorary architect, which showed that the freehold site secured for the new institution, purchased in 1873 for 3,500*l.*, was three-quarters of an acre in extent, with a frontage of 113 ft., and a depth of over 200 ft. It was admirably open and airy, occupying a most healthy situation, and the Home itself would be lofty, while the surrounding houses would be low. The proposed new building was to consist of a centre and two wings, that now commenced being devoted to the elder girls, and comprising about one-third of the whole structure. The corresponding wing was to be appropriated to infants, the centre block containing the rooms required for general purposes. The Home was to be a substantial and plain one, and the contractor had undertaken to complete the wing now in question by October 31st.

BELGIAN IRONWORKS FOR NEW BUILDINGS.

CAUTION TO ARCHITECTS.

A PRACTICAL and scientific inquiry, of much value to architects and engineers who use Belgian ironwork on account of its cheapness, has recently ended by a report from Mr. W. Farnworth, manager of the iron and tin-plate works of Messrs. Baldwin :—

"In personal observations and statistics, made and acquired during a journey through most of the principal coalfields and ironworks in Belgium," Mr. Farnworth says, "that the rails which an English ironmaster and himself inspected in the works of the John Cockerill Company, and which were going off in a finished state, were certainly such goods as would not have been passed in England. When he called the attention of the Belgian overseer to the flaws in the rails, the reply was, 'You would not have it quite sound would you?' Nor was the unsoundness exceptional. They did not find one rail which would not, in England, have been called defective, or that would not need patching. The rails, however, were mostly for Government lines, and the Belgian Government had an interest in the works. Having noticed that the sheets which the Belgians were rolling were both red-short and cold-short, he was not a little surprised when, on leaving the iron mills and going into the engine-works, he found that locomotive dome casings were being made from Belgian sheet-iron. When, however, he examined these casings, he found none perfect, and all had to be patched. He knew well what kind of iron was required to stamp out a perfect dome; for he had been engaged in the making of it, and it had occupied much of his attention. He was, therefore, not much surprised that, remembering the quality of the iron which the Belgians mostly produced, they should not, out of their own metal, be able to make perfect dome casings. Such domes would not be passed by English engineers."

Those architects employing rolled beams, joists, girders, and other constructional ironworks from Belgium, are in the habit of leaving all inspections to foremen, or to the clerks of the works. The iron is brought to the buildings and cast off the trolleys into the road, and labourers at once are at work in hoisting it to its intended position on the new works.

The New Store, Hebden Bridge.—The contracts for the new co-operative store, which is about to be built opposite the White Horse Hotel, have been disposed of. They amount to 5,326*l.* 3*s.* 5*d.* The following are the chief contractors :—Masons' work, Mr. Lewis Crabtree; joiners' work, Mr. J. Lister; plastering and slating, Messrs. Wrigley & Son; plumbing, &c., Messrs. A. Uttley & Sons, Hebden Bridge; window shutters, Clark & Co., London.

CONGRESS OF THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE programme of the Evesham Congress runs as follows :—

Monday, August 16th.—Reception by the Mayor and Corporation at 3 p.m.—Delivery of the inaugural address by the president, the Marquis of Hertford.—Visits to the remains of the Abbey, the churches, and other antiquities.—At 7 p.m. the inaugural dinner will take place at the Town-hall.

Tuesday.—Excursion to Stratford-on-Avon.—Reception by the Mayor and Corporation.—Visits will be made to the birthplace of Shakspeare, New Place, the Guild Chapel, Church, and Monuments, under the guidance of the Rev. Dr. Collis, the vicar of Stratford-on-Avon.—Thence to Clopton House, where Mr. and Mrs. Arthur Hodgson will receive the party.—Evening meeting at Evesham at 8·30 p.m.

Wednesday.—Excursion to Broadway and Buckland, at the invitation of Mr. J. O. Halliwell Phillipps, F.R.S.—Examination of the antiquities of Broadway, and the ancient manor house and roof of Buckland Church, under the guidance of Mr. J. Robinson.—Luncheon will be provided at the Lygon Arms.—Evening meeting.

Thursday.—Excursion to Stanway, Hailes Abbey, and Sudeley Castle, where a reception will be given by Mr. and Mrs. Dent.—A paper will be read on its history.—A visit will be made to Postlip Manor House, Winchcomb, and Toddington Park.—Evening meeting.

Friday.—Excursion by steamer down the Avon to visit Fladbury, Wyre, Pershore Abbey, Strensham Church, and Deerhurst Saxon Church, thence to Tewkesbury Abbey, which will be described by Mr. Thomas Blashill.—Evening meeting.

Saturday.—Reception by the president at Ragley Park.—Visits will be made to Alcester, Conghton Court, Oversley, where, by the kind permission of Sir Nicholas W. Throckmorton, the Tumulus will be opened and explored.

TENDERS FOR THE LONDON SCHOOL BOARD.

AT the meeting of the Board last week, the Works Committee reported that :—

1. The Committee have invited tenders for the erection of a school to provide accommodation for 1,104 children, on the site in Keeton's-road, Bermondsey. The following are the respective amounts :—

Crockett	£10,350	0	0
Oliver	9,885	0	0
Manley & Rogers	9,577	0	0
Kirk & Randall	9,395	0	0
Shepherd	9,160	0	0
Jerrard (accepted)	8,949	0	0

Cost of site, 5,721*l.* Cost of building per head, 8*l.* 2*s.* 1*d.*

2. The Committee have also invited tenders for the erection of a school to provide accommodation for 1,104 children, on the site in Holden-street, Battersea, the amounts of which are as follow :—

High	£9,889	0	0
Oliver	9,256	0	0
Thompson'	9,236	0	0
Newman & Mann	9,113	0	0
Hill, Higgs, & Hill	8,904	0	0
Tyerman	8,815	0	0
Kirk & Randall	8,690	0	0
Taylor	8,592	9	6
Wall Brothers (accepted)	8,303	0	0

Cost of site, 2,864*l.* 8*s.* Cost of building per head, 7*l.* 10*s.* 5*d.*

3. The Committee have also invited tenders for the erection of a school to provide accommodation for 828 children, on the site in Union-street, Larkhall-lane, Clapham. The following are the respective amounts :—

Scrivener & White	£7,695	0	0
Brass	7,562	0	0
Cooper	7,500	0	0
McLachlan & Son	7,275	0	0
Wall Brothers	7,222	0	0
Pritchard	7,175	0	0
Tyerman	7,023	0	0
Downs (accepted)	6,739	0	0

The recommendations of the Committee were adopted.

PAYMENT FOR ESTIMATE.

AT the Woodbridge County Court, on the 19th inst., Mr. John Frost, builder, Woodbridge, brought an action against Messrs. Coles & Shadbolt, cement manufacturers, to recover 3*l.* 15*s.*, for making an estimate of the cost of a new dock at cement works belonging to the defendants at Waldringfield, and for other work done. The firm wrote stating that, not knowing any solicitor in Woodbridge but Mr. Brooke, who, as registrar, could not act for them, they would leave it to his Honour, with a statement of the facts that they engaged the plaintiff to make an estimate, but his estimate was so large that they employed another tradesman. On giving up the works, they requested defendant to send in his account at once, but he did not do so.

His Honour went carefully through the account, and gave judgment for 3*l.* 12*s.* 6*d.*

ARCHITECTURAL EXAMINATION AT THE INSTITUTE OF ARCHITECTS.

IT is stated that, of the fifteen candidates who presented themselves for examination in the Proficiency and Preliminary Classes of the Architectural Examination, 1875, the following gentlemen passed, viz. :—In the Proficiency Class (*Artistic Section*) Henry Branch, James Jerman, H. W. Moore, Charles R. Pink, Sydney Vacher.

(*Scientific Section*) :—James Jerman, Charles Richard Pink.

In the Preliminary Class :—Robert Flemming, Wallace Gill, John H. Greene, J. F. Hennessy, Adrian Lane, William H. Thorp, Robinson L. Wadmore.

Further, that on the report of the examiners the Council awarded the Ashpitel Prize to Mr. J. F. Hennessy, as the candidate who had distinguished himself most creditably in the examination.

The Ashpitel Prize (consisting of books to the value of 10*l.*), has been duly presented to Mr. J. F. Hennessy.

OVERCROWDING IN SUFFOLK.

THE medical officer of health of the Samford Rural Sanitary District (Mr. G. S. Elliston) reports to the Board of Guardians as to overcrowding in the district, and the difficulties which exist in dealing with such cases, as follows :—

"The great drawback in country districts is that, owing to house rents being low, the return on the capital expended in building new cottages is not sufficient to induce private individuals to embark in such undertakings; the consequence being that village after village contains a number of old and patched-up cottages, tenanted by large and increasing families. It would be an inestimable boon to the working classes in agricultural districts if the local landowners would interest themselves in this important question, and provide model labourers' dwellings on their estates, in which families could be reared in a decent and healthy manner. A good example of this may be seen at Woolverstone, where a large-hearted landowner has demolished all the old and dilapidated cottages, and erected in their place good roomy and well-appointed model dwellings. When the labourers in country districts have become better housed we shall see an improvement in the physique of their families and a reduction in the amount of sickness and pauperism."

PUBLIC WORKS IN IRELAND.

THE forty-third annual Report of the Commissioners of Public Works in Ireland, states that during the year, ended March 31st, 1875, a sum of 285,436*l.* 19*s.* 1*d.* was advanced by them to various public bodies and individuals, thus bringing up the total amount of the loans since 1831 to 11,842,767*l.* Of this sum 6,436,245*l.*, including principal and interest, have been repaid, and 5,737,390*l.* remitted. The principal works for which these loans are issued, are railways, harbours and docks, labourers' dwellings, towns' improvements, and drainage. Under these various heads the docks carried out during 1874 include seventeen new National schoolhouses, erected at a cost of 5,908*l.*, besides which various extensions and repairs have taken place at Kingstown, Howth, and Donaghadee Harbours.

VICTORIA EMBANKMENT.

SIR,—In your issue of the 24th of July is a letter from "W.," with which I agree. When the carpenters (yclept gardeners) were spoiling the shade trees on this Embankment by lopping off all the *under* branches instead of the *top*, I told them of their mistake, with, of course, the usual result, *i.e.*, disdain for an outsider. If the tops were lopped, the trees would spread laterally, and afford a pleasant shade, like the Dock Promenade at Ipswich, and would not (as at present they bid fair to) become living linen props.

CIVIL ENGINEER.

HOW REMEDY THE USE OF SEA SAND?

SIR,—I have a house at the seaside, built of stone and sand from the shore, the result is that the walls and internal divisions exude the salts when the least humidity is in the atmosphere. Can any of your correspondents suggest a mode of keeping the damp from coming through, except battening, which, I fear, would have to be renewed frequently, from the action of dry-rot on the timber and boarding.

SHEPPARD SCOTT.

THE BAXTER STATUE.

A STATUE of Richard Baxter, author of "Saint's Everlasting Rest," has been unveiled in Kidderminster, where he long preached. When money had been raised by subscription, the sculptor selected to do the work was Mr. T. Brock, a pupil of the late Mr. Foley, and who has produced an admirable figure. The face, which has been taken from portraits of the divine, is a striking likeness. Baxter is represented wearing the Geneva gown and bands, with his right hand elevated as if enforcing an argument. As before stated, the figure of Baxter is of white Sicilian marble, and is 10 ft. in height. It stands on a gray granite pedestal 12 ft. high, in all being 22 ft. high. On the pedestal is the following inscription:—"Between the years 1641 and 1660, this town was the scene of the labours of Richard Baxter, renowned equally for his Christian learning and his pastoral fidelity: in a stormy and divided age he advocated unity and comprehension; pointing the way to 'the everlasting rest.' Churchmen and Nonconformists united to raise this memorial A.D. 1875." The cost has been about 1,250*l*.

ATTEMPT TO WITHDRAW A TENDER.

AT a meeting of the Norwich Town Council on the 20th inst., the Asylum Committee reported that at a meeting on the 23rd of June, in answer to an advertisement, tenders were received for building the foundations of the new asylum, and excavating and levelling the ground. After discussion, and Mr. Phipson having informed the committee that the lowest tender was fair and reasonable, it was unanimously resolved that the Council be recommended to accept the tender of Mr. G. E. Hawes, for carrying out the work according to the plans and specifications prepared by Mr. Phipson, for the sum of 6,000*l*. The Town Clerk said he had received a letter from Mr. Hawes stating that a week having elapsed since the tenders were sent in, and the delay having created certain difficulties involving additional expense, if his tender was the lowest one or if he had been selected to do the work, he must have more money. It was resolved that Mr. Hawes should be held to his contract.

VALUE OF OPEN SPACES.

A PROPOSITION was lately made to the vestry of St. Marylebone to allow a row of four-story houses with shop to be built at the west of the Marylebone-road on the property of Mr. Bond Cabbel (where there have been for many years some unfinished houses standing back from the road) and to be placed 8 ft. from the footpath, thereby reducing the general width of the road, gardens included, from 30 ft. or 40 ft. The application was treated by the influential members as a boon to the parish, and it was acceded to with only about half a dozen dessentients. It was strongly supported at the Metropolitan Board by the two representatives, and met with the same success.

A similar application was made a few weeks before by a builder to put up a row of houses opposite the Workhouse, in the gardens, and unanimously negatived, he not having a friend to speak in his favour. This is a sample of unanticipated parochial wisdom.

The parish is now spending many thousands in pulling down narrow streets in the close neighbourhood at the back in order to make wide ones and ventilate the locality.

A RATEPAYER.

THE ACCIDENT AT KENSINGTON.

SIR,—With reference to the report in the *Builder* of the inquest held upon the labourer Bryan, who was killed at Kensington on the 12th inst., by the falling of a tile arch, allow me to say the houses in question are not built "upon arches," but the arch which fell was turned to form a coach-house floor over a cellar in the basement. The suggestion offered to account for the accident was not that the porous tiles "had absorbed the cement," but that the harder burned tiles had not absorbed the water when soaked, as the more porous ones had, and (the arch having been turned during the hot week in May) the water had evaporated from the harder tiles. This theory is supported by the fact that the porous tiles of the fallen arch were covered with cement on both sides, but the harder-burned tiles were almost as clean as before being used.

M.

THE NEIGHBOURHOOD OF BURY.

SIR,—I am pleased with the article in your issue of the 17th inst., touching upon the churches of Bury St. Edmunds and Lavenham, Long Melford, &c. Having visited them and others in my rambles, while engaged in the neighbourhood, I would recommend the visitor, in going or returning, to take the road between Bury and Long Melford, leading by Cockfield, when he could pay a visit to the church of, I think it is called, Little Whelentenham, where he would find something to interest him in the old hammer-beam roof, and other matters, not forgetting some old bench-ends; one in particular bearing evidence of a very peculiar taste on the part of either the designer or the workman.

A little further on, after regaining the road, he will, at Bradfield Combust,—opposite the village inn at the bottom of an avenue of limes,—find an ably-executed specimen of napped flint walling, with red brick dressings, (cut) mouldings and clustered (cut) moulded chimneys, corbel to oriel window, &c., the residence of Mr. A. J. Young, built in 1857, the architect being Mr. F. Barnes, of Ipswich. The neighbourhood abounds with objects of interest in the way of village churches, amongst them being the Three Bradfields (viz., Bradfield Combust, St. Clare, and St. George), Stanningfield, Cockfield, and others, enough to amply repay the visitor for his pains taken to reach them. By-the-bye, you did not mention the famous peal of bells in the tower of Lavenham Church.

J. W.

LIGHTING WITH MINERAL OIL.

SIR,—Whilst going round the recent Camp at Wimbledon and into individual camps, I was somewhat astonished at the very excellent arrangements that were made and carried out for lighting it and them, and was gratified to learn that it was all done with mineral oil and lamps, and at a really nominal cost. Of course I am not prepared to maintain the superiority of this system of lighting over gas in every particular, but I certainly think it achieved a triumph in this instance, being used with perfect safety where it would have been impossible to use gas without considerable expense, and giving forth about twice the power of light at a little more than half the cost of consumption.

I have long thought this method of lighting capable of a broad development on the side of economy, and the experience of my visit proved to me that it was a fact.

To give one instance alone of its capabilities, take the lamp ("hurricane," I believe) used at the top of the flagstaff in each camp through the violent weather of the past week: each could be seen with a perfectly steady illumination all over the camp. Put a gas jet in such a position and compare the two under the same circumstances.

R. P. D.

CASES UNDER THE BUILDING ACT.

NEGLECT OF NOTICE.

ON the 17th July, at the Greenwich Police-court, before Mr. Balguy, Mr. J. Tolley, District Surveyor of Sydenham, summoned Mr. A. Deards, builder, of Webber-row, Blackfriars-road, for having built two greenhouses at the Hall, Sydenham, without giving him the notice required by the Act of Parliament. The defendant stated that he was employed to do the brickwork only, and produced a perspective drawing of the walls of one of the houses, minus the sashes and woodwork, and urged that what he had done did not form a building, and therefore the notice was unnecessary.

Mr. Tolley drew the attention of the magistrate to the clauses in the Building Act, which set forth that the necessary woodwork of the sashes, doors, and frames only are exempt, and that, therefore, the brickwork is specially the work for which notice is required, and that the term "builder" applies to, and includes the master builder, or other person employed to execute, or who actually executes *any* work upon a building, also that the buildings were covered in, and that he had used every means from the 25th June to the taking out of the summons, to get defendant to give the notice, but without effect. The magistrate ruled that the defendant was the builder, and that the work he had done was a work subject to the rules and regulations of the Act, and, therefore, it was his duty to have given the District Surveyor notice two days before he commenced the work, and that by the neglect he had incurred a penalty of 20*l*.; but that as he appeared to have misunderstood the Act, and not intentionally evaded giving the notice, the penalty would be reduced to 40*s*. and costs.

Jedburgh Abbey Church.—Workmen have now commenced to remove the old church from the ruins of the Abbey. Already all the seating has been taken out, and part of the north wall, which formed no portion of the original fabric, has been taken down.

HISTORY OF PAPER-HANGINGS.

SIR,—Referring to your interesting article (Nos. 1693, 1694, pp. 640, 663) on Mr. George Morton's History of Paper-hangings, read at the Liverpool Architectural Society, allow me to direct attention to some designs for paper-hangings, dated so far back as 1740, which are in the Soane Museum. They form part of a collection of "Miscellaneous Drawings and Prints, Patterns for Embroidery, Tapestry, &c." The drawings by a foreign hand are admirably executed, and contain some quaint notes by the artist.

JOSEPH BONOMI.

STAINED GLASS.

Cookham.—A coloured glass window has been placed in the parish church of Cookham, in memory of Miss Anne Pocock, late of Maidenhead, by that lady's brother, Mr. Isaac Innes Pocock. It has been executed by Messrs. Lavers, Barraud, & Westlake, and represents two incidents connected with the Resurrection of our Lord; namely, the Angel at the Sepulchre appearing to the Three Women, and our Lord appearing to St. Mary Magdalene in the Garden. The groups are placed under Early English canopies, and beneath are the two texts, "He is not here, but risen," and "I ascend unto My Father and your Father."

Springfield. — A stained-glass window has recently been placed in the nave of All Saints, Springfield, on the south side, to the memory of the late Mrs. Seabrook, of Old Lodge. The window is divided into three lights, with tracery. The subject chosen is "The Presentation in the Temple." At the base is the inscription, "To the glory of God, and to the loving memory of Mary Seabrook, this window is erected by her daughters and youngest son." Then follows the text, "Lord, now lettest Thy servant depart in peace." It is from the studio of Messrs. O'Connor & Taylor, of London.

ARCHITECTS' CHARGES.

PEARCE *v.* BARTON.

THIS was a claim, at the Brompton County Court, on the 14th inst., brought by an architect and builder to recover the sum of 4*l*. 4*s*., for making certain drawings and specifications for proposed alterations in defendant's premises.

Mr. Abraham Pearce said he was an architect and builder, and the defendant having got a provisional licence for his beer-house, employed him to make the plans and specifications for its conversion from a beer-shop to a public-house. There was also an understanding that if the licence was confirmed, witness was to have the superintendence of the work. The magistrates, however, refused to confirm the licence, and defendant now refused to pay for the plans, &c.

Defendant said when he engaged with the plaintiff, it was distinctly understood that if the licence was obtained, plaintiff was to be engaged to superintend the work, and be paid for so doing; but as he had not got the licence, the plans were useless to him, but as plaintiff had been at some trouble witness had offered him two guineas as compensation for his lost time.

His Honour said there had been no complaint that the work had not been competently done, but defendant seemed to think he was justified in refusing to pay for it because he had not obtained his licence. It was nonsense to suppose that plaintiff would have undertaken the work on the terms suggested by the defendant. He gave judgment for plaintiff for the full amount.

WORKMEN'S WAGES.

SIR,—A number of plasterers and labourers were engaged on board a vessel lying in the Victoria Docks, and finished the same on Friday night, June 11th. The following day (Saturday), after a great deal of trouble, the principal of the men were paid half their money by midnight. On Monday they applied to the magistrate at Stratford Police Court for summonses to recover the remainder, when he refused, and referred them to Bow County Court.

I myself, as overlooker and timekeeper, applied to the magistrate at Clerkenwell Police Court, and was also referred to the County Court.

I should like to know if the law is altered with regard to recovering wages in a Police Court. If we are compelled to recover in a County Court, it will be some months, if ever we recover it at all, and therefore a great hardship to poor workmen with families, who may have to wait for two or three months for their weekly wages, if a master chooses to keep them waiting.

J. BARNETT.

The Wallace-Tucker Fire Annihilator.—This invention consists of a chemical composition, which, when fixed in an apartment, will on a fire occurring in that apartment, and raising the heat to a certain temperature, give off a sufficient quantity of carbonic acid gas to extinguish the fire. Thus it only comes into action by the operation of the fire itself, without attention or care of any kind. According to the inventors, the gas is given off with sufficient force to permeate the whole apartment, and consequently it completely annihilates all fire therein.

THE IMPROVED INDUSTRIAL DWELLINGS COMPANY.

THE twenty-fourth half-yearly meeting of this company is to be held at the Mansion House, on Tuesday next. According to the report, which will then be read,—

"The total expenditure, including the contributions to the Leasehold Redemption Funds and Repairs Account, amounting respectively to 134*l.* 12*s.* 10*d.* and 1,602*l.*, has been 7,612*l.* 11*s.* 2*d.*, leaving a profit of 6,868*l.* 9*s.* 8*d.* Of this amount, 518*l.* 10*s.* 9*d.*, repaid to the Commissioners during the half-year, has been carried to the Public Works Loan Redemption Fund; and the balance, viz., 6,349*l.* 18*s.* 11*d.*, added to the balance, 282*l.* 5*s.* 9*d.*, brought forward from last half-year, gives a total of 6,632*l.* 4*s.* 8*d.* available for dividend."

"The Directors recommend the payment of the usual dividend at the rate of 5 per cent. per annum, free of income-tax, which will absorb 4,375*l.*; that 2,000*l.* be added to the reserve fund for the equalisation of dividends; and that 257*l.* 4*s.* 8*d.* remaining, be carried forward to the next half-year's account."

"The buildings in Pimlico-road have been completed, and were at once let, the applications having been greatly in excess of the accommodotion provided. The additional block of dwellings at Wapping has been also completed, and is now being let. The buildings in Tothill-fields, and Upper Garden-street, Westminster, are progressing favourably, and, it is hoped, will be opened before the end of the year. Applications for these dwellings are being already daily received. The erection of 150 more dwellings at the Bethnal-green Estate, by the company's workmen, is proceeding satisfactorily, and a portion of the buildings will, it is believed, be ready for occupation at Christmas.

The designs of the Goswell-road Estate, prepared by the Directors, as referred to in the last report, have been approved by the Marquess of Northampton, the free-holder, and are now being carried out. These provide for the accommodation of 285 families, or about 1,500 persons."

"The works to which the Company are at present committed will require for their completion the whole of the balance of the present capital, as well as the balance of public loans which it is contemplated may be raised in respect of these works; and having in view the sites which may be obtained under the new Act, as well as from other sources, the question of raising additional capital must be considered. This subject has engaged the attention of the Directors, and it is proposed to call a special meeting of the members at an early date to consider the same, when a proposition will be submitted for the creation of further capital to the amount of 250,000*l.*"

SUPPLY OF WATER IN VILLAGES.

SANITARY DELEGATES' MEETING.

THE first meeting of the delegates appointed by the different Sanitary Authorities, was held at the County Hall, Northampton, on the 17th inst. There were present,—Mr. J. L. Stratton Brackley (Rural Sanitary Authority), Rev. C. Smyth (Hardington Rural), Rev. A. Boodle (Thraptston Rural), Mr. Reeve (Potterspury Rural), Mr. Taylor (Newport Pagnell Rural), and Mr. Haviland (Medical Officer of Health).

The Chairman (Mr. Stratton) stated that he had ascertained from the Local Government Board that a clause had been inserted in the new Act which enabled that Board to call meetings of the delegates of the combined authorities, and give those meetings a legal status. He then introduced the subject of the supply of water in villages. The wording of the Act was, that the Sanitary Authorities may supply water to any villages. If all the owners dug wells, the Sanitary Authorities would not be required to supply the water. He thought the best plan for obtaining a good supply would be to "spout" a church, and place a cistern in which to catch the water. Taking the fall at 24 in.—that was 2 cubic feet of water per square foot, and a cubic foot was six gallons,—that would be twelve gallons for each cubic foot of the area of the church. In his own place, with a population of 300, this would give between 30,000 and 40,000 gallons in the course of the year, which was an enormous quantity. Many of the cottages might also be spouted, but the thatched cottages were the great objection, and it must be remembered that the water would only be useful for washing purposes, cleaning, &c., not for drinking, because of the dirt.

Mr. Haviland.—Not without filtration.

Mr. Reeve said, with regard to the spouting of the churches, at Stony Stratford they had a good fire-brigade, and a bad supply of water, and at his suggestion a tank was made. This was sunk about 6 ft. deep, and it was wonderful the quantity of water they got off the church. It was filled the first rain they had. The average rainfall in Northamptonshire was 24 in., and if that fell on a roof 500 square feet they would get 6,232 gallons of water. It was computed that the roofage of the houses throughout towns might be taken as an average of 60 square feet. That would give throughout England about three gallons saved to every individual per diem. The subject now engrossing attention was, how the water could be made pure and wholesome by certain filtering appliances, which had been perfected. This had been done in the army abroad, where they were worse off than here, and the system of filtering had been made so complete that the water was perfectly drinkable. He looked upon river water as a source of pollution. What they wanted was, to reserve the water which they could depend upon for drinking purposes, and economise it in times of drought by using rain-water for cleaning and other purposes. He advocated the spouting of the churches and other buildings, by which means an abundant supply of water could be obtained.

Rev. C. Smyth said that in the two villages with which he was connected there was a well to every two or three houses, but from scarcely any one of them could decent water be obtained. They were on ironstone rock, and the refuse from a farmyard percolated, and spoiled the water in a well 60 or 70 yards away. Then, again, there would be a difficulty in spouting the cottages, as they were nearly all thatched roofs, and, as regarded the church, he was afraid there would be an objection to fixing a tank in the churchyard. In his parish they had to deal with limestone rock, which was very porous. There was plenty of water near the surface, but it was more or less contaminated. At last they set to work, and bored for 280 ft., when they found a splendid supply. This was sent to Mr. Young, the analyst, and he declared that it was very much impregnated with sewage. Next it was sent to Dr. Letheby, who reported that it was free from sewage, but impregnated with Glauber salts.

Mr. Dunn said the tank would soon be a cesspool. At the union a large tank was fixed, but it became a nuisance, and so they would find it with the tank in the churchyard. The people would not go to it while they had plenty of water, and the result would be that if the water were left there two or three weeks it would be unfit for use.

After further discussion the meeting was adjourned till October.

SETTLEMENT OF THE GRINDING MONEY QUESTION.

AT a Conference held on the 27th inst. between the Sub-Committee appointed to represent the Central Association of Master Builders of London and a Deputation from the Carpenters and Joiners of London to discuss and settle the question,—

"Whether an allowance to carpenters and joiners for grinding and putting their tools in order should be uniformly made, and, if so, to what extent and under what conditions:"

The following arrangement was made and agreed to:—

"That sufficient time,—not exceeding two hours,—shall be allowed to the carpenters and joiners on discharge for the purpose of grinding and putting their tools in order; this time to commence two hours before such discharge, it being understood that the time allowed shall be occupied by the carpenters and joiners for that purpose."

Signed,—

"Benj. Hannen.	Francis Chandler.
F. J. Dove.	Samuel Tindall.
Edward Conder.	John Kennedy.
James Mugford Macey.	George Scarfe Double.
Stanley G. Bird.	James George Sydenham.
	Charles Matkin, Secretary."

A CONTUMACIOUS BUILDER.

AT the Solihull Petty Sessions, Richard Court, a builder, at Sparshill, was summoned before the magistrates for having neglected to provide certain sanitary arrangements in some houses belonging to him as required by the Rural Sanitary Authority. The defendant had been before the Bench on previous occasions, having given a great deal of trouble from time to time with regard to houses he had been building; and having been building five houses of a very trumpery character at Greet, the sanitary inspector directed his attention to the want of proper accommodation and drainage, which made it impossible that the houses could be occupied without becoming a nuisance, and ultimately after various adjournments an order was made that he should construct proper accommodation. On the inspector going to the defendant for the purpose of serving the order, he was received with a volley of abuse, the defendant including in his denunciations not only the inspector, but the magistrates and the authorities generally. As one effect of the neglect of the defendant, it had been reported that there were cases of blood-poisoning and low fever, and a family in one of the houses had to be sent away in order to avoid infection. The defendant, who did not appear, was ordered to pay the full penalty of 10*s.* per day from the service of the order,—seventeen days,—together with costs. An order was also made in case the defendant still resisted for the Sanitary Authority to do the work, and charge the defendant with the cost.

A Stone Pulpit for Trinity Church, Windsor.—The officers of the Scots Fusilier Guards are about to present a handsome stone pulpit, with marble columns, to Trinity Church, Windsor.

ROMAN CATHOLIC CHURCH BUILDING NEWS.

Chester.—The Roman Catholic Chapel of St. Francis, in this city, was recently opened by Cardinal Manning. In December, 1863, a gale swept over the city, and the building, which was then approaching completion, was unroofed and almost destroyed. A new church now stands on the site. Over the porch is a niche with a temporary statue, which is to be replaced by a statue of St. Francis of Assisi, the founder of the Franciscan Order (a gift from the architect). The height of the walls to the top of the plate is 28 ft., and from the floor to the ceiling 45 ft., to the apex 61 ft. The church consists of nave, 86 ft. by 45 ft. inside of walls; sanctuary, 20 ft. by 20 ft., the opening between the sanctuary piers being 19 ft. wide by 40 ft. high from nave floor to crown of arch. Side chapels, of which, when completed, there are to be seven, 10 ft. by 8 ft., the openings 8 ft. wide by 18 ft. in height to crown of arch. The floors of the side chapels are laid with encaustic tiles, and raised from the level of nave by a 6-in. step of whitetree stone running the whole width of the building and inlaid with encaustic tiles, also a second step to the sanctuary, of the same material. Behind the sanctuary, and connected with it by two carved oak doors, is the fathers' choir, 33 ft. 6 in. by 14 ft., and on the north side of the sanctuary is the lay brothers' choir, 12 ft. by 12 ft. Adjoining this is the boys' sacristy, 12 ft. by 12 ft., and on the south side of the sanctuary is a vestry-room, 24 ft. by 24 ft. At the west end is the organ gallery, 45 ft. by 14 ft., with a pitch-pine perforated front, and lighted by five geometrical windows from the gable, accessible by a stone staircase. The architect was Mr. James O'Byrne, of Liverpool; and the builder, Mr. John Woolley, of Birkenhead. The stone-carving was by Mr. Sullivan, of Chester.

Plaistow. — The foundation-stone of St. Margaret's Church, Barking-road, Victoria Docks, has been laid by Cardinal Manning. The new church will be built of brick with Portland stone dressings outside and Bath stone inside, and will consist of nave, choir with an apsidal termination, two narrow aisles with porches on the north and south, and a small tower on the north. A distinctive feature in the interior is that the church is vaulted throughout with brick groining, and is in the twelfth-century style. Mr. F. W. Tasker is the architect, and Messrs. Greenwood & Sons are the builders.

Dudley.—Having been closed for some months, and in the meantime undergone considerable alterations and repairs, at a cost exceeding 600*l.*, the Catholic Church, Dudley, has been re-opened. The edifice was erected from designs by the elder Pugin. The salient features of the restoration are as follows:—The whole of the old quarry flooring has been removed, and an encaustic tile floor substituted. The part occupied by the congregation has been raised and boarded. The seating has been re-arranged, and further accommodation provided. Three-branch gas-lights have been obtained in lieu of the old brackets which were formerly fixed to the pillars. The seats in the singers' gallery have been re-arranged, and the organ cleaned and repaired. The interior has been renovated and painted throughout, the roof timbers being grained light oak, and the ceilings coloured a grey tint, the walls being of a warm stone-colour. The caps of the pillars are relieved by gold and colouring. The work was executed by Mr. Henry Holland. The general contractors were Messrs. W. Holland & Son, of Dudley, who have also carried out the repairs required upon the exterior of the building. Messrs. Hardman, of Birmingham, have decorated the sanctuary and lady chapel. The tiles for the flooring were from the manufactory of Mr. W. Godwin, of Hereford, and the gas-standards from Mr. Whitehouse, Birmingham. The architects were Messrs. Marsh, Bros.

Flint, Window, and Stained Glass Exhibition.—The London Company of Glass Sellers, incorporated in 1664, is about to hold an exhibition in the Alexandra Palace, in September, of specimens of glass manufacture of all varieties, and have invited the Warrington manufacturers and others to exhibit. Prizes will be given for the purity of metal, elegance of design, durability, and cheapness of the flint glass; for the finish, adaptability, and cheapness of the window glass; and for the best specimen of painted stained glass.

VARIORUM.

SKETCHING the life of Sir John Hawkshaw, the *Leisure Hour* says,—"Speaking in 1862, he was then able to affirm that the engineering works of the thirty previous years had exceeded in magnitude all the previous engineering works of the world put together. The address, devoted in part to a review of improvements and progress effected in steam navigation, electric telegraphs, and other cognate subjects, thus eloquently concludes: 'No man can look back on the last twenty or thirty years without feeling that it has been the age of engineers and mechanicians. Our profession has done much in that period to change the aspect of human affairs. What physical agency, single or combined, can be compared in its effects or in its tendency towards the amelioration of mankind with the establishment of railways, the electric telegraph, and steam navigation? In constructing railways, telegraphs, steamboats and their adjuncts, docks and harbours, and moulding and fashioning the face of the material universe to the wants of man, in overcoming barriers, overleaping valleys and spanning seas, engineers annihilate both space and time, bring into juxtaposition nations and peoples, and accelerate beyond all human expectation personal communication and that interchange of ideas which is all-important to the advancement of civilisation and knowledge. Distance and separation have led, and always will lead, to misapprehension and prejudice, to ignorance and mistrust, to rebellion and war; and engineers may feel, when labouring on the great public works that facilitate the intercourse of nations, that they are not merely conquering physical difficulties, but they are also aiding a great moral and social work.' These words will serve to show that Sir John Hawkshaw's aims reach beyond the immediate object of his professional labours,—material prosperity. He takes an interest in education, and lately pointed out in a forcible communication to the *Times* the deficient training in the use of living languages which our modern education supplies. Before Parliamentary committees he has frequently been examined, and is well known for the clearness and honesty of his evidence, and for his steady maintenance of opinions which his long and varied professional experience has convinced himself to be correct."——Mr. Walford devotes the August number of "Old and New London" to Westminster Abbey. He says of the Towers,—"The towers on either side of the west front are strengthened by substantial buttresses, with two ranges of canopied niches on their fronts. The lower windows of the towers are pointed; those above them arches only filled with quatrefoils and circles. It is from this part that the incongruity of the new design begins in a Tuscan cornice; above this is a Grecian pediment and enrichments over the dial of the clock, and in each face of the topmost stories is a Gothic window of poor design; the whole being crowned with battlements and pinnacles. The credit of completing the west front, as it anciently appeared, is due to the abbots Estney and Islip; but it was never entirely finished till the reign of George II. 'It is evident,' observes Sir Christopher Wren in his architectural report addressed to Bishop Atterbury, 'that the two towers were left imperfect, the one much higher than the other, though still too low for bells, which are stifled by the height of the roof above them; they ought certainly to be carried to an equal height, one story above the ridge of the roof, still continuing the Gothic manner in the stonework and tracery. Something,' he adds, 'must be done to strengthen the west window, which is crazy; the pediment is only boarded, but ought undoubtedly to be of stone.'"——Cassell's *Family Magazine* gives a recipe for Cleaning Plate,—"In the busiest households, I presume, it is arranged that the plate should be cleaned once a week. You will find that it will shine throughout those seven days (with the aid of the occasional rub over with a dry, clean wash-leather) if it has been properly cleaned at the outset; on the other hand, if it has been attended to in a careless slip-shod way, that day it will do no one credit, and the next day it will look as dull as if it had not been touched. The error which is so often committed is that of putting on the whitening, rouge, or whatever plate-powder is used, and expecting that will do all that is required. But no silver can or will shine if it has the least suspicion of grease about it, and this being the case, it is necessary to wash all the articles in clean warm water, with flannel and soap, before any further attempt is made. Then, after it has been dried with a clean cloth, the plate-powder can be put on, and when dry it may be brushed off again, and finally every piece of silver must be industriously and thoroughly rubbed with a soft chamois leather. Now it looks as if it had just arrived from the silversmith's shop."

Miscellanea.

The Discovery at Pompeii.—A correspondent of the *Times* writes an interesting account of the recent discovery of the archives of a private citizen of Pompeii, consisting of a large number of waxen tables in a perishable condition, but still capable of being deciphered. The workmen were busy excavating the remains of a private house, the walls of which are covered with well-preserved paintings, and in clearing one of the upper rooms situated above the inferior *ambulacrum* they came upon a wooden box somewhat sunk into the pavement, which in the process of time had given way beneath it. Its contents consisted, as nearly as could be ascertained, of about 300 thin tablets of pinewood of various dimensions; some measuring 118 millemètres by 83, others 132 by 120, a few double this size, all tied together in threes, and packed in regular order, or strata; and upon the edge of a number of these tablets was the word "Proscriptio," written with *atramentum*, and followed by a name on some in the genitive, and on others in the dative case. With great delicacy one of the packets from the upper stratum was lifted off and carefully opened, when, to the delight of all around, the writing was seen distinctly legible,—the stylus, in penetrating the thin layer of wax, which had entirely disappeared, having left the form of the characters on the soft wood beneath, and the following words were read:—

"Q Volusio Saturnino. P. Cornelio. Cos. VIII. K. Jul.
M. Alleius Carpus scripsi me
accepisse. ab. L. Caecilio
Jucundo HS MCCCXXCVI
ab auctione me supti-
pulatu ejus
Actum Pomp."

Which he renders—

"Written by Marcus Alleius Carpus on the 8th Kalends of July, Quintus Volusius Saturninus and Publius Cornelius being Consuls (A.D. 56). I have received from Lucius Caecilius Jucundus, 1,386 sesterces, the amount increased by me upon the contract stipulated by him. Done at Pompeii."

Roads in Westminster.—At the meeting of the Metropolitan Board of Works last week, a deputation was introduced from the Westminster District Board by Mr. White, and a memorial was presented on the subject of improving the approach between Victoria-street and Rochester-row, either by widening Strutton-ground or by forming a good communication by way of Artillery-row. Mr. Trollope said a short time ago a memorial, signed by Mr. Solater-Booth, M.P., and a number of influential gentlemen, was presented to the Local Board, asking them to carry out a most important public improvement. He was old enough to remember when the whole of South Belgravia was green fields, but it was now covered with buildings of a superior character. At present the most direct way from Rochester-row to Victoria-street was by way of Strutton-ground, which was of a very narrow, overcrowded, and otherwise inconvenient character, and by widening this street a great benefit would be conferred upon the inhabitants of South Belgravia, and of the metropolis at large, by forming a better route from the Houses of Parliament and Westminster Bridge. Mr. H. L. Taylor asked if the district was prepared to pay half the cost, and if any estimates had been prepared of the probable cost. Mr. Trollope said the district was not prepared to contribute at present, and they did not know what it would cost. The memorial was referred to the Works Committee.

Brighton School of Art and Science.—In the Government examinations and competitions of the students of this school, in the science examination in Building Construction, second-class certificates have been awarded in the elementary stage to Messrs. D. B. Bostal, C. E. Butler, W. Franklin, C. C. Freeman, F. C. Ide, E. J. Norris, and G. Weeks. In the advanced stage, to Messrs. H. Alderton, E. J. Coles, and H. Farncombe. To numerous ladies have been awarded certificates and prizes in freehand drawing, model drawing, practical geometry, and perspective, to the exclusion almost of the other sex.

The Sanitary Condition of Wednesbury. Dr. Ballard reports as to the sanitary condition of this town that the arrangement of the streets in the older parts of the town is very irregular. There are numerous ill-arranged courts, many of which are very confined, several houses being crowded upon a very limited space. Unwholesome cottages are let at exorbitant rents, the demand for labourers' cottages having much exceeded the supply. The district generally is unsewered, the only public drains in the town being brick culverts put into the sides and sometimes the middle of roadways for the conveyance away of surface water and the sewage which reaches the gulleys from the street channels, along which it flows for long distances. The inhabitants are dependent for the removal of slops and domestic sewage upon the surface channels at the side of the street, and in many instances domestic sewage is conducted into cesspools or dumb wells. Very many of the cellars are flooded with water either habitually or in rainy weather. Ashpit privies are in almost universal use, and in many parts of the town are overloaded with excrement and ashes. In the course of five years no fewer than 248 deaths have occurred from scarlet fever, 154 from fever, 174 from choleraic and diarrhœal affections. The spread of many of the diseases is to be attributed to unwholesome local conditions polluting the soil, air, and water with filth.

Ovenden School Board, Halifax.—At the monthly meeting of the Ovenden School Board last week, the clerk said that the plans of Mr. Petty were altered in accordance with the recommendation from the last meeting, and sent to the Department, from whom a reply had been received, approving of the plans for the Moorside School. Mr. Hanson suggested that the names be given to the schools according to the locality in which they were placed; and it was resolved that the names of the three schools be respectively "Moorside," "Bradshaw," and "Mixenden." The plan of Mixenden School was submitted by Messrs. Horsfall, Wardle, & Patchett, who estimated the cost of the building at 2,850*l.*, which included the erection of school, conveniences, boundary-walls, drainage and water supply, &c., according to the drawings and specifications sent in, and did not include the cost of site or other incidental expenses. The accommodation provided would be for 380 scholars. The chairman said that the cost would be 7*l.* 10*s.* per head without fittings, and the additional cost for the site would be about 360*l.*; whilst the plans of Mr. Petty estimated the total expenditure at 8*l.* per head, including fittings. The plans of Messrs. Horsfall & Co. were agreed to be sent to the Department.

Accident at St. Mary's Hospital.—Dr. Hardwicke held an inquiry at the Bank of England Tavern, Cambridge-place, Paddington, touching the death of Thomas Fudge, 21. St. Mary's Hospital, which is now undergoing repair, is in the hands of Messrs. Holland & Hannen, contractors, deceased being in their employ as a plumber. The evidence showed that at the time of the accident deceased was engaged with two others in lowering some 6 cwt. of lead, &c., from the second to the ground floor, by means of the lift, which they had obtained permission to use. The construction of the lift was described, showing that there was a brake attached, which could be removed by the pulling of a rope at any of the landings, to allow of the lift descending at pleasure. Deceased and a carpenter were in the cage of the lift, and deceased was in the act of getting out on the second floor landing, when the lift suddenly moved downwards and the upper part of the cage caught him, striking him on the neck, and jamming his head on the stone sill. The jury agreed that death in this case was caused by being crushed in the lift, but that there was not sufficient evidence to show who it was that interfered with the brake.

Accident at New Brighton.—On Monday night between five and six o'clock a number of men were engaged in Victoria-road, opposite the two new shops of Messrs. Dickson & Mason, making a connexion of the sewerage pipes, which, at this point, are 17 ft. below the surface, and are embedded in sand. The upper portion of the trench had been propped up with small pieces of timber, but nearer to the bottom no measures had been taken to prevent the sides from falling in. Just as a man named M'Nally was making the connexion of the pipes, the sides of the trench gave way, and he was instantly buried in the sand, and when, in about half an hour, he was got out life was extinct.

Hospital for Sick Children.—The new hospital for sick children in Great Ormond-street, which has nearly approached completion, has been opened by the committee of management for private view, and visited by a large number of the friends and patrons of this praiseworthy charity, whose usefulness in this vast metropolis has been generally admitted. Although the architect, Mr. E. M. Barry, R.A., has given an attractive front to the building, and made everything in the interior pleasing to the eye, the decorations, with the exception of the chapel, which has been the gift of an unknown donor, are inexpensive. The wards are lined with glazed bricks. The ceilings are in parian and the floors are of teak. The wards are heated partly by hot-water pipes, and partly by a Galton's stove in the centre of each ward. In addition to ventilation by the windows, by the ventilators on the floor level, and by an ingenious arrangement in the window-heads, a ventilating shaft runs up in the centre of the wall of each ward in which, by means of a furnace in the basement, an upward current of air is constantly maintained. Full particulars of the building, with plans and view, will be found in our volume for 1872 (vol. xxx.), pp. 65, 66, and 67.

St. Alban's School of Art.—The arrangements made by the committee for the new School of Art are now complete, and have been approved by the Science and Art Department. The Art Night Classes, which have been taught by Mr. Brash during the last five years, will be attached in September next, so that the school will then consist of a morning class, open twice a week, and an evening class three times a week. Dr. Puckett is elected head-master; and Mr. Brash will act as assistant master to the evening classes. The accommodation placed at the disposal of the committee for a school of art is not of the best kind, though we do not know that any better is existing in the town at the present time. If the idea of having a Mechanics' Institute and School of Science and Art in one building could be practically worked out, the whole of the present inconvenience in the way of carrying on the School of Art would be obviated, and a long and generally-felt want in St. Alban's would be supplied. It will be "better late than never," and we trust even yet that something will be done to provide a Literary Institute for the town, whether wholly by voluntary subscription, or partly in that way, and partly from the borough funds.

Dispute in the Building Trade at Jarrow. On the 17th inst., the operative joiners engaged in the building trade at Jarrow turned out on strike. Hitherto, it appears, they have been working without any rules, but latterly a code has been framed by the men and submitted to the twenty-four master builders, only three of whom had approved and signed them up to Friday night. At that time a resolution was passed that if the rules were not signed by noon on Saturday, the men should turn out on strike in a body, and the masters having still dissented, they have done so accordingly. Without rules, the men have been working overtime at the same wage as day time,—viz., 8½d. per hour, but the rules stipulate that "all time wrought after 5 p.m. (or twelve, noon, on Saturdays) shall be paid for at the rate of 10½d. per hour for the first four hours, and after that 1s. 0½d. per hour; and from twelve, midnight, on Saturday till half-past six a.m. on Monday double the ordinary rate." The men have also passed a bye-law, abolishing piecework and sub-contracts.

St. Peter's Church Tower, Maldon.—Considerable alarm was occasioned on the 23rd inst., when it was rumoured that this tower had fallen. Time and weather have so far affected the structure that several feet of the stone work connecting the tower with the octangular turret at the north-west angle have fallen, and in the descent made a large breach of some 4 ft. or 5 ft. in diameter in the roof of the library, but has not penetrated the ceiling. The difficulty was not got over until the following day, by which time a party of engineers had set matters right. Other portions of the tower appearing likely to fall unless at once supported, operations were commenced with a view to the old tower being made still able to hold its own.

Popular Museum of Anatomy and Physiology.—Mr. A. J. Harvey proposes by a circular the establishment of a People's Museum of Human Anatomy, Physiology, and Popular Surgery (including a department on popular medicine), to be erected and endowed by Government.

Constantinople.—It appears that the news given by the *Byzantis* relative to the suspension of the works of the new Azizieh mosque on the heights of Beshiktash, is incorrect. A long revetment has been completed on the Dolmabaghtché side, and more than 4,000 workmen are constantly employed on the foundations of the edifice. Serkis Bey, the palace architect, has promised the Sultan to finish the mosque, with all its kiosks, fountains, and outbuildings, in the space of three years. In order to economise the cost of the transport of the stone and timber used in its construction, the Sultan has placed at the disposal of the architect the steam-vessel *Shelif*, bought a short time since from the Messageries Maritimes. The whole of the cost will be defrayed out of the Sultan's privy purse, and the workmen are paid regularly every week. The block of eighty houses which are being constructed at Beshiktash, and are to serve as an endowment for the new mosque, will be finished within three or four months.

Discoveries at Iona.—Mr. Thomas Cook says:—"From the captain I learned that the existence of the cave was well known, especially to Mr. Maclean, the proprietor of Carsaig; and it was known to be a cave of considerable extent and interest. Its location is on the shore, at the foot of a cliff, about a mile east of the Carsaig Arches. At Iona I got an interview with a mason, who had been engaged in quarrying freestone for the repairs at Iona, and he told me that he had traced drawings of columns on the walls; that the cave is 80 ft. square, and will afford room for a large number of workmen. Some fifty tons of beautiful freestone have been got out for the repairs of the cathedral, and any quantity may be obtained. I suggested that most of the monuments,—broken crosses, tombstones, &c.,—are of slate, and he replied that there are layers of slate under layers of freestone, and there is abundance of material, of both kinds, for any number of monuments that might be erected on Iona. The evidence of this practical man confirms the opinion that this was the quarry where stone to build and monuments to adorn were procured for the famed island."

The Royal Forests.—In a report from Messrs. Mathews, Murton, and Menzies to the Lords Commissioners of Her Majesty's Treasury relative to the Royal forests, which has just been printed, attention is called to the system under which the large timber is now supplied to the dockyards from the New Forest; a system which is said to be "open to serious objections, as it is at variance with all the principles which regulate commercial transactions between one department and another." A certain quantity of timber is required for the Navy; the entire forest is searched for the best trees, which are taken down without any reference to what is around and about them, and broken into "thick stuff" or "plank" by the forest servants (whose business is, or ought to be, to grow trees, and not to be converters of timber), and accepted or rejected at the caprice of the Navy purveyor, it being notorious that one purveyor will reject what another will accept. The rejected timber is then sold to the general merchant at such price as an article with a discarded brand upon it may be expected to realise.

Restoration of Ashbourne Parish Church. Immediately after the foundation-stone of the new schools was laid on the 19th inst., two parishioners announced their intention of restoring the window of the north transept of the church, and of filling the same with stained glass at their own expense. This will be a great improvement, and form a companion window to that recently placed in the south transept as a testimonial to the Rev. J. R. Errington, the late vicar. The cost of the new window will, it is believed, amount to about 600*l*. We are glad to see that the restoration is going on steadily, and that friends come forward as in this case and help to make this fine old parish church what it must have been two or three centuries ago.

The Midland Institute of Mining Engineers and Coal-cutting Machinery.—The members of the Midland Institute of Mining Engineers, at their annual meeting, held at Barnsley recently, made an additional grant of 25*l*. to the sum of 50*l*. voted to a committee appointed some time ago to examine and report upon the various mechanical arrangements now in use for under-cutting or otherwise assisting in the operations of getting coal. The report of the committee is looked forward to with some interest.

New National Schools, Shildon.—St. John's new National Schools have been opened. There are now three school buildings almost ready for the reception of scholars,—that which was opened on Wednesday, another at Eldon, and a third in connexion with All Saints' Church, on the south side of the valley. The St. John's National Schools occupy a convenient site, which is easy of access to the residents of the surrounding neighbourhood, and the buildings have been erected with due regard to health and comfort. They form two sides of a square, and consist of one well-ventilated room, of a length of 100 ft., and with a class-room at each end. The schools have been built to accommodate 400 children, and have been erected at a total cost of 2,500*l*.

The New Station at Sale.—The works were commenced in March, 1874, and during their progress to completion it is satisfactory to record that no accident occurred. The principal entrance, which will be greatly improved in appearance when the bridge is widened, is from the high-road. It is well protected with a large awning over the front, and the arches of the windows and doors are done in parti-coloured bricks. On the same floor are placed commodious booking and parcel offices. The cost of the new works, we may mention, is about 11,000*l*. The architect is Mr. Woodhouse, Stafford; the contractor, Mr. E. Johnson, Manchester; the clerk of works, Mr. E. Parry; and the superintendent foreman, Mr. G. Furness.

New National Schools, Ashbourn.—On the 19th inst. the foundation-stone of an additional school (for girls) was laid by the Rev. J. R. Errington, rector of Ladbrook, and late vicar of Ashbourn. The site of the new school is nearly opposite the north entrance of the parish church, and near the present school, which will be appropriated entirely for boys. The new school is to be built of Alton and Hollington stone, from designs prepared by Mr. Robinson, the diocesan architect, and suggested by the Rev. J. R. Errington. The erection of the school was offered for public competition, and the tender of Mr. W. Smith, to do the work for 1,630*l*., was accepted.

West of England College of Science and Literature.—Last week an important meeting of peers and members of the House of Commons, connected with the West of England and South Wales, was held in the Conference-room of the House of Commons, for the purpose of promoting the proposed School of Science and Literature for the district, which it is proposed to establish at Bristol. The Dean of Bristol and the Rev. Prebendary Percival gave details of the proposed scheme, of which various other gentlemen signified their approval, and it was stated that 17,000*l*. had been already collected in Bristol.

The Building Trade in Edinburgh.—Building is almost the only trade brisk here. So many new schools are going up all over the country that very few workmen are coming to town; and the new schools, two new theatres, and a cathedral are all in want of more hands. The new cathedral is at a stand still, however, the men having left *en masse* for the theatre, where as much as 1s. per hour is being paid to push on to be ready for the next pantomime. Meantime, Mr. Brooke, of London, the church contractor, wishes to be relieved of his responsibility, and there the matter rests.

Moving the Ocean.—A rather "big" thing in contracts has just been entered into by Mr. W. Hudson, the "Ecosevephoron," Queen's-road, Brighton, who has undertaken to effect the conveyance from Brighton to London of 600,000 gallons of sea-water required for use in the tanks of the Westminster Aquarium, which is now in an advanced stage of completion. The water, which will be conveyed in casks, will be obtained through the agency of Brill's Baths Company.

The Clerkenwell Surveyor.—We have to record the death of Mr. Sanders Bevan, the surveyor of the parish of Clerkenwell, at the age of sixty-three, which took place on Thursday afternoon in last week, at Southend. Mr. Bevan was appointed surveyor soon after the establishment of the Vestry in 1856, being the first surveyor named under Sir Benjamin Hall's Metropolis Management Act of 1857. Ever since that period he has occupied the post.

A New Deaf and Dumb Institution for Leeds.—On the 22nd inst., at Leeds, the Baroness Burdett Coutts laid the foundation-stone of a new institution for the deaf and dumb in the West Riding of Yorkshire.

School Board Architects. — The School Board of Llangattock-nigh-Usk (Monmouthshire) have elected Messrs. Haddon, Brothers, of Hereford and Malvern, their architects. The Walterstone (Herefordshire) School Board also appointed these gentlemen their architects at a meeting held on the 15th inst. The Messrs. Haddon now hold the appointment of architects to *seven* distinct School Boards, viz., Hay, Breconshire; Marden and Stoke Prior, Herefordshire; Llanbister and Llanfihangel-Rhyd-Ithon, Radnorshire; and the two first named.

Memorial Stone Laying at Rotherham. The four memorial stones of the new Wesleyan chapel, at Eastwood, Rotherham, were laid last week. The chapel will be built in the Romanesque style of architecture, and will accommodate about 800 people. It will be 71 ft. long by 47 ft. wide, and an outshot at the back, forming vestries, will be 32 ft. by 12 ft. Underneath the chapel will be a schoolroom and two classrooms, which will provide accommodation for 380 children.

The Drainage Scheme, Lightcliffe.—The plans for the proposed drainage of this district have been prepared by Messrs. Horsfall, Wardle, & Patchett, of Halifax. A system of drainage must be carried out; and the board has wisely planned a general scheme rather than go in for a partial one. It may not be necessary to carry out this all at once; but as many new buildings are now in progress, and the erection of others is contemplated, it is almost absolutely necessary that main drains should be at once constructed in some parts of the district.

The Clearstory of Chipping-Norton Church.—At an adjourned vestry meeting held on the 15th inst. — present, the vicar (in the chair), Messrs. A. C. Rawlinson and Martin Pearson (churchwardens), and Messrs. Coleman, Sladden, and Lewis — it was determined that the architect's plans with reference to the glass in the clearstory windows be carried out, and that Mr. Hobb's tender be accepted at the sum of 498*l*.

Proposed New Exchange in Newcastle.—The proposal to erect a new Exchange, and to pull down the present building, together with the Guildhall, has lately been laid before the members of the Exchange Company by Mr. Benjamin Plummer, jun., and, after consideration, has met with the approval of those gentlemen. One hundred thousand pounds is mentioned as the likely cost of the new Exchange, should it be erected.

A Statue of the late Elector of Hesse is about to be placed in the cupola of Wilhelmshohe, among the statues of former Electors. By a strange coincidence there was but one vacant niche left in the wide circle, as if the architect had foreknown the number of princes of the House of Brabant destined to occupy the Electoral throne. The last statue will be that of the last once independent Elector.

Drinking Fountain.—Mr. A. M. Silber has presented a drinking-fountain with dog-trough to the parish of St. Alban, Wood-street, Cheapside. The fountain, which is of granite, has been erected in the churchyard in Wood-street. The Vestry of the parish have passed a vote of thanks to Mr. Silber for his gift. The *City Press* contains a sonnet suggested by it.

A large Flint Implement Found.—Dr. Gladstone, F.R.S., has found in the Lower Thames Valley a large flint implement of palæolithic make—the first indubitable relic of man which the mammalian beds of the Lower Thames Valley have yielded to show the contemporaneity of our race with the great quadrupeds of the Pleistocene age.

The Charity Children in St. Paul's.—It is rumoured that the gatherings of "charity children" in St. Paul's is to be discontinued for want of funds to cover the unavoidable expenses. We are very glad to hear it. The risk of fire to which the cathedral is exposed on those occasions from the piling up of timber stagings is enormous.

The Dust Depot for Islington.—At a special meeting of the Islington Vestry, held on the 23rd inst., a long discussion took place on the proposal of the Highways Committee to establish a depôt for dust on a piece of freehold land near the Great Northern Railway, between Highbury Park North and Gillespie-road, to be purchased for 8,950*l*. The proposal was negatived by a large majority.

Geological Curiosity.—The workmen employed upon Major Cartwright's new building, at Brackley, in sawing a block of stone of some two tons weight came upon a piece of decayed wood firmly imbedded in the centre of the stone. The wood was about 2 ft. 6 in. in length, and 3½ in. to 4½ in. in diameter. The stone was brought from the quarries at Corsham, Wilts.

Bust of Sir John Franklin.—*Apropos* of the death of Lady Franklin, which took place on Monday, the 19th inst., it may be mentioned that Mr. Matthew Noble, the sculptor, only on Saturday completed the cutting of the inscription on the monumental bust of Sir John Franklin, which he has just executed, for Westminster Abbey, and which will shortly be erected there.

Attack on the Palestine Exploring Party. According to Reuter's Agency, Sir H. G. Eliot, the English ambassador, has received a telegram announcing that Lieutenant Conder and the members of the Palestine exploring party have been attacked near Japhet (?) by a band of Algenens. The explorers succeeded in repulsing their assailants, and none of their party were wounded.

Church Building.—Messrs. Silver & Son, who are engaged in restoring the parish church of High Wycombe, and building a new one at West Wycombe, have entered into a contract for the restoration of Beedlow Church, under Sir Gilbert Scott, architect.

Stanley.—The old church of this parish was taken in hand for restoration and enlargement on Monday, July 12th. The builder is Mr. Brown, who is working under Messrs. Evans & Jolley, architects. The estimate of the entire cost is about 900*l*.

TENDERS

For alterations at 11, East India-road, Limehouse. Messrs. A. & C. Harston, architects:—

Heiser	£337 0 0
Harris & Wardrop	297 0 0
Hearle & Son	239 0 0
Palmer (accepted)	235 10 0

For a house in Tufnell Park, for Mr. Claude. Mr. George Truefitt, architect:—

Bird (accepted)	£1,713 0 0

For a house in Tufnell Park, for Mr. Bovet. Mr. George Truefitt, architect:—

Carter	£1,800 0 0
Bird (accepted)	1,785 0 0

For erecting and completing stable, at Hove, for Mr. J. Dempster. Mr. C. O. Blaber, architect. Quantities supplied:—

Newnham	£540 0 0
Stenning	530 0 0
Eldridge	515 0 0
Spreadborough & Feldwick	497 0 0
Reynolds	482 0 0

For the erection of three dwelling-houses, Chobham-road, Forest-gate, for Mr. T. Rea. Mr. Geo. Fowler, architect:—

Webb	£875 0 0
Lewis	870 0 0
Mansfield	867 0 0
Henry & Peddie (accepted)	795 0 0

For new premises, Broad-street, Reading, for Mr. A. Palmer. Messrs. Brown & Albury, architects:—

Searle	879 0 0
Filewood	838 0 0
Grover	820 0 0
Carter	794 0 0
East	757 15 0
Painter and Glazier's Work.	
Freeman	68 15 0

For building three mansions at the new street from Wigmore-street to Hindle-street, Oxford-street, for Mr. Jas. Hendry. Mr. John Norton, architect. Quantities by Mr. L. Thacker:—

Shapley	£17,700 0 0
Wilson Bros.	15,828 0 0
Lawrence	14,798 0 0
Smith	14,750 0 0
Braid, Jopling, & Co.*	14,000 0 0
Boyce	13,900 0 0
Gerrard	13,731 0 0

* Accepted.

For the erection of Christ Church, Stepney. Mr. Ewan Christian, architect. Quantities supplied:—

Patman & Fotheringham	£6,348 0 0
Brass	6,276 0 0
Jackson & Shaw	6,220 0 0
Dove Bros.	6,190 0 0
Manley & Rogers	6,077 0 0
Downs & Co.	6,050 0 0

For alterations and additions to No. 3, Cadogan-place, for Lady Lamb. Mr. C. E. Evans, architect:—

Heath (accepted)	£1,226 0 0

For alterations for Mr. Tappenden, Barrack Tavern, Woolwich-common. Mr. J. Groom, architect:—

Toms	£530 0 0
Raby	440 0 0
Whitby	400 0 0
Knight	391 0 0

For additional outbuildings and cottage, at Messrs. Lovibond's new stables, North Pole-lane, Greenwich. Mr. J. Kiddle, jun., architect. Quantities supplied by Messrs. Batterbury & Huxley:—

Newman & Mann	£607 0

For Boyd's Workmen's Institute. Mr. R. Gane, architect:—

Hosking Bros.	£1,850 0 0
Hammond (accepted)	1,835 0 0
Dover & Co.	1,812 0 0
Stephenson	1,810 0 0
Cropper	1,809 10 0
Potter	1,793 0 0
Timewell	1,756 0 0
Perry & Co.	1,726 0 0
Crabb	1,706 0 0

For schoolrooms, classrooms, and teachers' residence, at Wiveliscombe, Somerset, for the School Board. Mr. J. Houghton Spencer, architect:—

Spiller	£3,665 0 0
Escott	3,641 15 4
Morse	3,042 0 0
Stagg & Handford	2,937 0 0

For schools for London School Board. Mr. E. R. Robson, architect. Quantities supplied:—

Mantua-street, Lambeth.—2nd Design.	
Cooper	£9,582 0 0
Williams & Son	9,490 0 0
Taylor	9,351 0 0
Wall Bros.	9,274 0 0
Hill, Higgs, & Hill	9,240 0 0
Tyerman	9,233 0 0
Hobson	9,168 0 0
Nightingale	9,083 0 0
Kirk & Randall	8,989 0 0
Rendlesham-road, Clapton.	
Staines & Son	£8,278 0 0
Lawrence	8,100 0 0
Nightingale	7,883 0 0
Hobson	7,879 0 0
Shurmur	7,853 16 7
Newman & Mann	7,820 0 0
Sargeant	7,792 0 0
Pritchard	7,766 0 0
Boyce	7,494 0 0
Ennor	7,374 0 0
Roberts	6,642 0 0
Grover	6,447 0 0

For erecting and completing domestic offices for the Cripples' Home, Wright's-lane, Kensington. Mr. E. C. Robins, architect. Quantities supplied:—

Sharpington & Cole	£1,196 0 0
Brass	1,128 0 0
Newman & Mann	1,116 0 0
Hobson	1,043 0 0
Lucas	980 0 0

For taking down old building and erecting new premises on the site of No. 10, Little Tower-street, City, for Mr. H. Sotheram. Mr. Sextus Dyball, architect. Quantities supplied by Mr. W. E. Stoner:—

Croaker	£3,545 0 0
Holland & Hannen	3,370 0 0
Killby	3,360 0 0
Ashby Bros.	3,346 0 0
Patman & Fotheringham	3,195 0 0
Brass	3,184 0 0
Newman & Mann	2,948 0 0
Browne & Robinson	2,837 0 0

For alterations and additions to chapel and boundary walls, &c., East-hill, Wandsworth, Surrey. Mr. E. C. Robins, architect. Quantities supplied by Mr. G. R. Tasker:—

Stimpson	£3,988 0 0
Brass	3,797 0 0
Sharpington & Cole	3,597 0 0
Hobson	3,594 0 0
Turrell	3,592 0 0
Hill, Higgs, & Hill	3,579 0 0
Taylor	3,580 0 0
Newman & Mann	3,426 0 0
Adamson	3,367 0 0

For new Baptist Chapel, Meyrick-road, Battersea. Mr. Gordon Stanham, architect. Quantities supplied:—

Hill, Higgs, & Hill	£2,224 0 0
Adamson & Sons	2,129 0 0
Newman & Mann	2,128 0 0
Hockley	2,110 0 0
Lathey Bros.	1,960 0 0
Appleton & Turtle	1,935 0 0

For new school and mission room, in King's-cross-road, Clerkenwell, for the trustees in connexion with St. Philip's Church. Mr. Walter E. MacCarthy, architect. Quantities supplied by Mr. William Smith:—

Cullum	£1,144 0 0
Greenwood & Son	1,114 0 0
Wheeler & Warren	1,050 0 0
Sabey & Son	1,037 0 0
Newman & Mann (accepted)	1,025 0 0

For new studio and fence walls, at Hampstead. Messrs Batterbury & Huxley, architects. Quantities supplied:—

Patman & Fotheringham	£2,693 0 0
Burford	2,822 0 0
Newman & Mann	2,442 0 0
Manley & Rogers	2,377 0 0
Linsell	2,300 0 0

For new warehouse, Hatton-garden, for Mr. Munt. Mr. Wimble, architect. Quantities supplied:—

Bayes & Ramage	£2,597 0 0
Morter	2,571 0 0
Hoare	2,539 0 0
Croaker	2,483 0 0
Newman & Mann	2,425 0 0
Faulkner	2,387 0 0

TO CORRESPONDENTS.

W. H. P.—H. H. B.—Mr. P.—A. & C. H.—R. C. P.—D.—H. L.—J. H.—J. D. H.—E. B. F.—J. M.—J. C.—A. A. K.—C. T.—W. H. L.—T. H.—J. B.—J. M.—T. B.—C. F.—E. G.—B. J. & Co.—L.—J. D. H.—J. S. H.—W. R.—D. & Co.—C. G.—H. M. C.—R. I. B.—C. R. S.—T. H. H.—A. L. G. (thanks).—T. R (we cannot advocate any scheme for *preserving* the dead).—R. E. P. (next week).—H. L. (next week).—C. F. (next week).—W. H. W. (next week).

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